IUCLID

Data Set

New Chemical	:	ID: 79-04-9
CAS No.	:	79-04-9
Generic name	:	Chloroacetyl chloride

Producer related part

Company	:	The Dow Chemical Company
Creation date	:	28.11.2000

Substance related part

Company	:	The Dow Chemical Company
Creation date	:	28.11.2000
Status	:	
Memo	:	
Printing date	:	06.11.2006
Revision date	:	
Date of last update	:	10.12.2002
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Chapter (profile)	:	Chapter: 1, 2, 3, 4, 5, 6, 7, 8, 10
Reliability (profile)	:	Reliability: without reliability, 1, 2, 3, 4
Flags (profile)	:	Flags: without flag, confidential, non confidential, WGK (DE), TA-Luft (DE), Material Safety Dataset, Risk Assessment, Directive 67/548/EEC, SIDS

1.0.1 APPLICANT AND COMPANY INFORMATION

Type	:	
Name	:	The Dow Chemical Company
Contact person	:	
Date	:	
Street	:	2020 Dow Center
Town	:	48674 Midland, Michigan
Country	:	United States
Phone	:	
Telefax	:	
Telex	:	
Cedex	:	
Email	:	
Homepage	:	

13.12.2000

1.0.2 LOCATION OF PRODUCTION SITE, IMPORTER OR FORMULATOR

Type	:	
Name of plant	:	The Dow Chemical Company's Michigan Operations Site
Street	:	
Town	:	Midland MI
Country	:	United States
Phone	:	989-636-1000
Telefax	:	
Telex	:	
Cedex	:	
Email	:	
Homepage	:	

Remark : Chloroacetyl Chloride (CAC) is produced in a single facility within The Dow Chemical Company's Michigan Operations Site located in Midland, Michigan. CAC is manufactured from vinylidene chloride in a closed system. The majority of the CAC is consumed within the same facility in the production of other chlorinated derivatives. A very small percentage is sold to off-site customers, who also utilizes CAC as an intermediate. Upon completion of production, the CAC is placed in one of several storage tanks, which are all vented to a caustic scrubber. For internal consumption, CAC is transferred to the reactors as needed via pipeline. For off-site consumption, the CAC is loaded, via a closed system with a vapor return line, into isocontainers. The customers, who off-load the CAC, also have vapor recovery systems in place. Further, off-site customers have handled this material safely for quite some time as evidenced by our on-site customer audits. These audits, conducted by our product steward, are required by our Global Product Stewardship Plan to be held at least every three years.

30.08.2001

1.0.3 IDENTITY OF RECIPIENTS

1.0.4 DETAILS ON CATEGORY/TEMPLATE

1.1.0 SUBSTANCE IDENTIFICATION

1.1.1 GENERAL SUBSTANCE INFORMATION

Purity type :
Substance type : organic
Physical status : liquid
Purity : = 99.4 % w/w
Colour :
Odour :

03.07.2002 (1)

1.1.2 SPECTRA

1.2 SYNONYMS AND TRADENAMES

1.3 IMPURITIES

Purity :
CAS-No : 630-20-6
EC-No :
EINECS-Name : 1,1,1,2-tetrachloroethane
Molecular formula :
Value : = .4 % w/w

03.07.2002

Purity :
CAS-No : 79-36-7
EC-No : 201-199-9
EINECS-Name : dichloroacetyl chloride
Molecular formula :
Value : = .15 % w/w

03.07.2002

Purity :
CAS-No : 541-88-8
EC-No :
EINECS-Name : Chloroacetic anhydride
Molecular formula :
Value : = .05 % w/w

03.07.2002 (1)

Purity :
CAS-No : 542-88-1
EC-No :
EINECS-Name : Bischloromethylether
Molecular formula :
Value : = .03 % w/w

03.07.2002

1.4 ADDITIVES

1.5 TOTAL QUANTITY

1.6.1 LABELLING

1.6.2 CLASSIFICATION

1.6.3 PACKAGING

1.7 USE PATTERN

1.7.1 DETAILED USE PATTERN

1.7.2 METHODS OF MANUFACTURE

1.8 REGULATORY MEASURES

1.8.1 OCCUPATIONAL EXPOSURE LIMIT VALUES

Type of limit : TLV (US)
Limit value : .05 other: ppm
Short term exposure limit value
Limit value : .15 other: ppm
Time schedule :
Frequency : times

Remark : This value carries a skin notation. A "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.
Reliability : (1) valid without restriction
30.08.2001

Type of limit : other: DOW IHG
Limit value : .01 other: ppm
Short term exposure limit value
Limit value : .05 other: ppm
Time schedule :
Frequency : times

Remark : This value carries a skin notation. A "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material. It is intended to alert the reader that inhalation may not be the only route of

exposure and that measures to minimize dermal exposures should be considered.

Reliability : (1) valid without restriction
30.08.2001

1.8.2 ACCEPTABLE RESIDUES LEVELS

1.8.3 WATER POLLUTION

1.8.4 MAJOR ACCIDENT HAZARDS

1.8.5 AIR POLLUTION

1.8.6 LISTINGS E.G. CHEMICAL INVENTORIES

1.9.1 DEGRADATION/TRANSFORMATION PRODUCTS

1.9.2 COMPONENTS

1.10 SOURCE OF EXPOSURE

1.11 ADDITIONAL REMARKS

1.12 LAST LITERATURE SEARCH

1.13 REVIEWS

2.1 MELTING POINT

Value : = -21.8 °C
Sublimation :
Method :
Year :
GLP : no data
Test substance : as prescribed by 1.1 - 1.4

Remark : Data are for the flake form of the material, and are measured.
Source : The Dow Chemical Company
10.12.2002 (2)

2.2 BOILING POINT

Value : = 106 °C at
Decomposition :
Method :
Year :
GLP : no data
Test substance : as prescribed by 1.1 - 1.4

Remark : Data are measured.
Source : The Dow Chemical Company
10.12.2002 (2)

2.3 DENSITY

2.3.1 GRANULOMETRY

2.4 VAPOUR PRESSURE

Value : = 33.3 hPa at 25 °C
Decomposition :
Method :
Year :
GLP : no data
Test substance : as prescribed by 1.1 - 1.4

Remark : Data are measured.
Source : The Dow Chemical Company
10.12.2002 (2)

2.5 PARTITION COEFFICIENT

2.6.1 SOLUBILITY IN DIFFERENT MEDIA

2.6.2 SURFACE TENSION

2.7 FLASH POINT

2.8 AUTO FLAMMABILITY

2.9 FLAMMABILITY

2.10 EXPLOSIVE PROPERTIES

2.11 OXIDIZING PROPERTIES

2.12 DISSOCIATION CONSTANT

2.13 VISCOSITY

2.14 ADDITIONAL REMARKS

3.1.1 PHOTODEGRADATION

Type	:	air
Light source	:	Sun light
Light spectrum	:	nm
Relative intensity	:	based on intensity of sunlight
DIRECT PHOTOLYSIS		
Halflife t1/2	:	= 450 day(s)
Degradation	:	% after
Quantum yield	:	
Deg. product	:	
Method	:	other (calculated)
Year	:	
GLP	:	
Test substance	:	as prescribed by 1.1 - 1.4
Deg. products	:	79-11-8 Acetic acid, chloro-
Source	:	The Dow Chemical Company
Reliability	:	(1) valid without restriction

30.08.2001 (3)

3.1.2 STABILITY IN WATER

Type	:	abiotic
t1/2 pH4	:	at °C
t1/2 pH7	:	< 30 minute(s) at 25 °C
t1/2 pH9	:	at °C
Deg. product	:	
Method	:	other
Year	:	
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Result	:	The cited article references experiments to determine the heat of hydrolysis of chloroacetyl chloride. It documents that the reaction, chloroacetyl chloride undergoing hydrolysis to produce hydrochloric acid and chloroacetic acid, required 2 hours to reach completion. The assumption can be made that "reach completion" means that >97% of the parent material has hydrolyzed. The corresponds to the completion of greater than 5 t1/2. Back-calculation then produces a t1/2 of less than 30 minutes, which is too short to be meaningful for environmental considerations.
Source	:	The Dow Chemical Company
Reliability	:	(1) valid without restriction

30.08.2001 (4)

3.1.3 STABILITY IN SOIL

3.2.1 MONITORING DATA

3.2.2 FIELD STUDIES

3.3.1 TRANSPORT BETWEEN ENVIRONMENTAL COMPARTMENTS

Type : fugacity model level III
Media : other: mathematical modeling
Air : 16 % (Fugacity Model Level I)
Water : 84 % (Fugacity Model Level I)
Soil : 0 % (Fugacity Model Level I)
Biota : 0 % (Fugacity Model Level II/III)
Soil : 66.7 % (Fugacity Model Level II/III)
Method : other: Mackay Level I/III fugacity modeling
Year : 2001

Source : The Dow Chemical Company
Test condition : Required Input Values for Level I/III Modeling of Chloroacetyl Chloride

Property	Value
Chemical Type	1
Molecular Mass (g/mol)	112.94
Water Solubility (g/m3)	3.99E+5
Vapor Pressure (Pa)	3300
Melting Point (0C)	-22
Estimated Henry's Law Constant (H) (Pa m3/mol) = (J/mol)	0.934
Kaw Air-Water Partition Coefficient	3.77E-4
Log Kow Octanol-Water Partition Coefficient	-0.22
Temperature (0C)	25
Amount of Chemical input to the System (kg)	100,000

Reliability : (1) valid without restriction
05.12.2001 (5)

3.3.2 DISTRIBUTION

3.4 MODE OF DEGRADATION IN ACTUAL USE

3.5 BIODEGRADATION

Contact time :
Degradation : = 100 (±) % after 28 day(s)
Result : readily biodegradable

Remark : Because the material hydrolyzes quickly (t1/2<30 min.) to chloroacetic acid and water, data quoted are taken from chloroacetic acid, summarized in IUCLID data sheet for CAS# 79-11-8. See that sheet for complete summary.
Source : The Dow Chemical Company
Reliability : (1) valid without restriction
30.08.2001

3.6 BOD5, COD OR BOD5/COD RATIO

BOD5
Method :
Year :
Concentration : related to
BOD5 : = .36 mg/l
GLP : no data
COD
Method :
Year :
COD : = .51 mg/g substance
GLP : no data
RATIO BOD5 / COD
BOD5/COD : = .71

Remark : Number cited in COD field is actually ThOD.
Source : The Dow Chemical Company
Reliability : (2) valid with restrictions
30.08.2001 (2)

3.7 BIOACCUMULATION

3.8 ADDITIONAL REMARKS

4.1 ACUTE/PROLONGED TOXICITY TO FISH

Type :
Species : Lebistes reticulatus (Fish, fresh water)
Exposure period : 96 hour(s)
Unit : mg/l
LC50 : = 369 calculated

Remark : Because the material hydrolyzes quickly (t1/2<30 min.) to chloroacetic acid and water, data quoted are taken from chloroacetic acid, summarized in IUCLID data sheet for CAS# 79-11-8. See that sheet for complete summary.
Source : The Dow Chemical Company
Reliability : (2) valid with restrictions
03.07.2002

Type :
Species : Leuciscus idus (Fish, fresh water)
Exposure period : 96 hour(s)
Unit : mg/l
LC50 : = 100 - 500 calculated

Remark : Because the material hydrolyzes quickly (t1/2<30 min.) to chloroacetic acid and water, data quoted are taken from chloroacetic acid, summarized in IUCLID data sheet for CAS# 79-11-8. See that sheet for complete summary.
Source : The Dow Chemical Company
Reliability : (2) valid with restrictions
30.08.2001

Type :
Species : Pimephales promelas (Fish, fresh water)
Exposure period : 96 hour(s)
Unit : mg/l
LC50 : = 145 - 164 calculated

Remark : Because the material hydrolyzes quickly (t1/2<30 min.) to chloroacetic acid and water, data quoted are taken from chloroacetic acid, summarized in IUCLID data sheet for CAS# 79-11-8. See that sheet for complete summary.
Source : The Dow Chemical Company
Reliability : (2) valid with restrictions
30.08.2001

4.2 ACUTE TOXICITY TO AQUATIC INVERTEBRATES

Type :
Species : Daphnia magna (Crustacea)
Exposure period : 48 hour(s)
Unit : mg/l
EC50 : = 22 - 75 calculated

Source : The Dow Chemical Company
Reliability : (2) valid with restrictions
30.08.2001 (2)

4.3 TOXICITY TO AQUATIC PLANTS E.G. ALGAE

Species : Scenedesmus subspicatus (Algae)
Endpoint : biomass
Exposure period : 48 hour(s)
Unit : mg/l
EC50 : = .028

Remark : Because the material hydrolyzes quickly (t1/2<30 min.) to chloroacetic acid and water, data quoted are taken from chloroacetic acid, summarized in IUCLID data sheet for CAS# 79-11-8. See that sheet for complete summary.
Source : The Dow Chemical Company
Reliability : (2) valid with restrictions
30.08.2001 (6)

Species : Scenedesmus subspicatus (Algae)
Endpoint : biomass
Exposure period : 72 hour(s)
Unit : mg/l
EC50 : = .025

Remark : Because the material hydrolyzes quickly (t1/2<30 min.) to chloroacetic acid and water, data quoted are taken from chloroacetic acid, summarized in IUCLID data sheet for CAS# 79-11-8. See that sheet for complete summary.
Source : The Dow Chemical Company
Reliability : (2) valid with restrictions
30.08.2001

Species : Scenedesmus subspicatus (Algae)
Endpoint : growth rate
Exposure period : 48 hour(s)
Unit : mg/l
EC50 : = .07

Remark : Because the material hydrolyzes quickly (t1/2<30 min.) to chloroacetic acid and water, data quoted are taken from chloroacetic acid, summarized in IUCLID data sheet for CAS# 79-11-8. See that sheet for complete summary.
Source : The Dow Chemical Company
Reliability : (2) valid with restrictions
30.08.2001 (7)

4.4 TOXICITY TO MICROORGANISMS E.G. BACTERIA

Type :
Species : Pseudomonas putida (Bacteria)
Exposure period : 3 hour(s)
Unit : mg/l
EC50 : = 750 - 1000

Remark : Because the material hydrolyzes quickly (t1/2<30 min.) to chloroacetic acid and water, data quoted are taken from chloroacetic acid, summarized in IUCLID data sheet for CAS# 79-11-8. See that sheet for complete summary.
Source : The Dow Chemical Company
Reliability : (2) valid with restrictions
30.08.2001 (8)

4.5.1 CHRONIC TOXICITY TO FISH

4.5.2 CHRONIC TOXICITY TO AQUATIC INVERTEBRATES

Species	:	Daphnia magna (Crustacea)
Endpoint	:	reproduction rate
Exposure period	:	21 day(s)
Unit	:	mg/l
NOEC	:	= 32
LOEC	:	= 100
MATC	:	= 56
Remark	:	Because the material hydrolyzes quickly (t1/2<30 min.) to chloroacetic acid and water, data quoted are taken from chloroacetic acid, summarized in IUCLID data sheet for CAS# 79-11-8. See that sheet for complete summary.
Source	:	The Dow Chemical Company
Reliability	:	(2) valid with restrictions

30.08.2001 (9)

4.6.1 TOXICITY TO SEDIMENT DWELLING ORGANISMS

4.6.2 TOXICITY TO TERRESTRIAL PLANTS

4.6.3 TOXICITY TO SOIL DWELLING ORGANISMS

4.6.4 TOX. TO OTHER NON MAMM. TERR. SPECIES

4.7 BIOLOGICAL EFFECTS MONITORING

4.8 BIOTRANSFORMATION AND KINETICS

4.9 ADDITIONAL REMARKS

5.0 TOXICOKINETICS, METABOLISM AND DISTRIBUTION

5.1.1 ACUTE ORAL TOXICITY

Type	:	LD50
Value	:	ca. 1260 - 2500 mg/kg bw
Species	:	rat
Strain	:	
Sex	:	male/female
Number of animals	:	2
Vehicle	:	other: corn oil
Doses	:	
Method	:	other
Year	:	1955
GLP	:	no data
Test substance	:	no data
Method	:	Young adult male and female rats were fasted overnight. They were administered the material as a 10% solution in corn oil at dose levels of 1260 (male) or 2500 (female) mg/kg bw. Animals were observed closely for two weeks, then submitted for pathological examination. All animals which died prior to scheduled necropsy were also submitted for pathological examination. Body weights were recorded on the day of treatment (Study Day 0), and Study Days 1, 8, and 15.
Result	:	Two of two males fed 1260 mg/kg bw died within 2 hours. Two of two females fed 2500 mg/kg bw survived the observation period with no weight loss.
Source	:	The Dow Chemical Company
Reliability	:	(2) valid with restrictions

30.08.2001 (2)

Type	:	LD50
Value	:	= 207 mg/kg bw
Species	:	rat
Strain	:	Sprague-Dawley
Sex	:	male/female
Number of animals	:	2
Vehicle	:	other: corn oil
Doses	:	
Method	:	other
Year	:	1969
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Method	:	Young adult male and female rats were fasted overnight. They were administered the material as a 50% solution in corn oil at dose levels of 126, 158, 200, or 251 mg/kg bw. Animals were observed closely for 9 days, then submitted for pathological examination. All animals which died prior to scheduled necropsy were also submitted for pathological examination. Body weights were recorded on the day of treatment.
Result	:	Survival time was several hours to 2 days with most deaths occurring within 1 day. Toxic signs included increasing weakness, collapse, and death. Survivors at lower dose levels showed normal weight gain in 7 days, while those at

higher dose levels showed only slight weight gain. At autopsy for animals which failed to survive the observation period, the lungs and liver were hemorrhagic and there was gastrointestinal inflammation. Surviving animals were sacrificed 9 days after dosing. Macroscopic examination showed areas of lung congestion, slight discoloration of the liver, and slight gastrointestinal inflammation.

Source : The Dow Chemical Company
Reliability : (2) valid with restrictions
30.08.2001 (10)

5.1.2 ACUTE INHALATION TOXICITY

Type : LC50
Value : = 660 ppm
Species : rat
Strain : Fischer 344
Sex : male/female
Number of animals : 6
Vehicle :
Doses :
Exposure time : 1 hour(s)
Method : EPA OPP 81-3
Year :
GLP : yes
Test substance : as prescribed by 1.1 - 1.4

Method : The test material was vaporized into stainless steel and glass 112 liter Rochester-type chambers using a j-tube apparatus. Groups of 6 male and 6 female Fischer 344 rats were exposed to concentrations of 32, 208, 522, or 747 ppm for one hour. nominal chamber concentrations during exposure were calculated based on the amount of test material used and the total air passed through the chamber during each exposure period. Chamber atmospheres were sampled and analyzed for test material content by high performance thin layer chromatography. Animals were observed during exposures and for 14 days after exposure. Body weights were collected on test days 1, 2, 4, 8, 11, and 15. A complete gross pathologic examination was conducted on each rat, either at death prior to study termination or at the end of the observation period.

Source : The Dow Chemical Company
Reliability : (1) valid without restriction
30.08.2001 (2)

Type : LC50
Value : = 2400 ppm
Species : mouse
Strain :
Sex :
Number of animals : 10
Vehicle : other
Doses :
Exposure time : 2 hour(s)
Method : other
Year : 1959
GLP : no data
Test substance : no data

Method	:	Groups of 10 mice were exposed for 2 hours to a range of test material concentrations between 0.5 and 30 mg/l. In addition, groups of 10 mice were exposed for 5 minutes to a range of concentrations between 10 and 65 mg/l. The mice were exposed in giant glass bottles with a capacity of 72.7 and 74.1 l, in accordance with the Kravkov method. Mice were examined for signs of toxicity during the exposure period and for 5 days thereafter. Mice were submitted for macroscopic and microscopic pathological examination upon death or at the end of the observation period.
Source	:	The Dow Chemical Company
Reliability	:	(2) valid with restrictions

30.08.2001 (11)

5.1.3 ACUTE DERMAL TOXICITY

Type	:	LD50
Value	:	= 316 - 501 mg/kg bw
Species	:	rabbit
Strain	:	New Zealand white
Sex	:	male/female
Number of animals	:	2
Vehicle	:	
Doses	:	
Method	:	other
Year	:	1969
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Method	:	Approximately 24 hours prior to dosing, the hair was removed from the trunk of 2 laboratory white rabbits/sex/dose with electric clippers. The test material was applied at 126, 200, 316, 501, 794, 1260, 200, 5010, or 10,000 mg/kg body weight under plastic strips. Following application the animals were held in wooden stocks for a 24-hour exposure period. The plastic strips were removed and the animals returned to their cages. The animals were observed during and after exposure and weighed at intervals up to two weeks post-application. The animals were submitted for necropsy examination after death or at the end of the observation period.
Result	:	Survival time was 3 hours to 2 days. Toxic signs included reduced appetite for 3 to 5 days in survivors, increasing weakness, dyspnea, collapse, and death. The test material was corrosive, with injury extending well in to the dermis. At autopsy for animals which died prior to the end of the observation period, there was slightly enlarged gall bladder and hemorrhagic lungs and liver. Surviving animals were sacrificed 14 days after dosing. The viscera appeared normal by macroscopic examination.
Source	:	The Dow Chemical Company
Reliability	:	(2) valid with restrictions

30.08.2001 (10)

Type	:	other: single dose dermal absorption study
Value	:	= 100 mg/kg bw
Species	:	rabbit
Strain	:	
Sex	:	male
Number of animals	:	1

Vehicle	:	
Doses	:	
Method	:	other
Year	:	1970
GLP	:	no data
Test substance	:	no data
Method	:	Approximately 24 hours prior to dosing, the hair was removed from the trunk of a laboratory white rabbit with electric clippers. The test material was applied at 100 mg/kg body weight under an impervious cuff held in place with a cloth bandage taped to the hair. Following application the animal was returned to a holding cage and allowed to eat and drink ad libitum. Following a 24-hour exposure period, the cuff was removed and the skin washed with soap and water. The animal was observed during and after exposure and weighed at intervals up to two weeks post-application. The animal was then submitted for necropsy examination.
Result	:	Application of 100 mg/kg body weight for 24 hours resulted in slight to moderate necrosis at the application site. The rabbit failed to gain weight over a 2-week observation period.
Source	:	The Dow Chemical Company
Reliability	:	(2) valid with restrictions

30.08.2001 (2)

5.1.4 ACUTE TOXICITY, OTHER ROUTES

5.2.1 SKIN IRRITATION

Species	:	rabbit
Concentration	:	undiluted
Exposure	:	Occlusive
Exposure time	:	24 hour(s)
Number of animals	:	1
Vehicle	:	
PDII	:	
Result	:	corrosive
Classification	:	
Method	:	other
Year	:	1970
GLP	:	no data
Test substance	:	no data
Method	:	These data were obtained during the conduct of a dermal absorption study. See Record 1, Acute Dermal Toxicity.
Reliability	:	(2) valid with restrictions

30.08.2001 (2)

Species	:	rabbit
Concentration	:	undiluted
Exposure	:	Occlusive
Exposure time	:	3 minute(s)
Number of animals	:	1
Vehicle	:	
PDII	:	
Result	:	corrosive
Classification	:	

Method	:	other
Year	:	1956
GLP	:	no data
Test substance	:	no data
Method	:	Male rabbits were prepared by shaving the hair from the entire abdomen with a straight razor and barber soap. The animal was then rested for several days to allow any abrasions to heal completely and to be sure skin was suitable for use. The material was applied undiluted for 0.5, 1 or 3 minutes to intact sites on the abdomen. Sites were covered with gauze pads and cloth bandages anchored to hair. Sites were inspected and graded when bandages were removed.
Result	:	Application to an intact site on the abdomen of a rabbit for 0.5 minutes caused very slight redness, very slight swelling, and necrosis. A similar application, left on for 1 minute, caused slight necrosis which, upon healing, left a scar. A similar application, left on for 3 minutes, caused slight redness and moderate necrosis which, upon healing, left a scar.
Source	:	The Dow Chemical Company
Reliability	:	(2) valid with restrictions

30.08.2001 (2)

Species	:	rabbit
Concentration	:	undiluted
Exposure	:	Occlusive
Exposure time	:	24 hour(s)
Number of animals	:	3
Vehicle	:	
PDII	:	
Result	:	corrosive
Classification	:	
Method	:	other
Year	:	1969
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Method	:	The backs of male and female rabbits were clipped. The test material was appled under plastic strips for 24 hours. Observations for irritation were made during exposure and for several days after application. The data were scored according to the Draize method.
Result	:	The average maximum Draize score was 8.0 out of 8.0 within 2 hours of exposure. Mild discomfort was immediately apparent. Within 10 minutes, the animals exhibited great discomfort with protruded eyes and erratic breathing. Within 1 hour, animals showed great discomfort, but no skin changes were apparent. Within 2 hours, the application sites had severe edema and severe erythema extending well beyond the area of exposure. Necrosis was obvious with injury extending well into the dermis. Within 168 hours, no change had occurred in the areas of necrosis except that the edema and erythema gradually disappeared.
Source	:	The Dow Chemical Company
Reliability	:	(2) valid with restrictions

30.08.2001 (10)

5.2.2 EYE IRRITATION

Species	:	rabbit
Concentration	:	undiluted
Dose	:	.1 ml
Exposure time	:	.5 minute(s)
Comment	:	
Number of animals	:	1
Vehicle	:	
Result	:	corrosive
Classification	:	
Method	:	other
Year	:	1956
GLP	:	no data
Test substance	:	no data

Method : Both eyes of a male New Zealand White rabbit were stained with 5% fluorescein dye and examined for evidence of injury or alterations. The rabbit was then allowed to rest for 24 hours before test.

Two drops of the material were introduced into the right eye. The eye was washed within 30 seconds for 2 minutes in a flowing stream of tepid water. Two drops of material were introduced in a similar fashion to the left eye, but this eye was left unwashed.

Immmediately after instillation into each eye, the rabbit was examined for signs of discomfort. Within 2-3 minutes after the unwashed eye was treated, each eye was observed for conjunctival and corneal response. Similar observations were made on both eyes at 1 hour, 24 hours, 48 hours, and 6-8 days post-treatment. Examinations were conducted both with and without fluorescein dye.

Result : Both the washed and unwashed eyes had similar reactions to contact with the test material: slight pain, very severe conjunctival and corneal irritation which had not healed appreciably within one week. Blindness very probable.

Source : The Dow Chemical Company

Reliability : (2) valid with restrictions

30.08.2001 (2)

Species	:	rabbit
Concentration	:	undiluted
Dose	:	.1 ml
Exposure time	:	.5 minute(s)
Comment	:	
Number of animals	:	2
Vehicle	:	
Result	:	corrosive
Classification	:	
Method	:	other
Year	:	1969
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4

Method : 0.1 ml of the material were introduced into the right eyes of a male and a female rabbit. In one rabbit, the eye was washed with warm isotonic saline within 30 seconds. In the other rabbit, the eye was washed with warm isotonic saline within 5 seconds.

Immmediately after instillation into each eye, and at intervals for several days, the eye was examined for signs of discomfort and irritation. The observations were scored according to the Draize method.

Result : The maximum Draize score in each eye was 110 out of a possible 110. Immediately after instillation, the rabbits exhibited signs of severe discomfort, including pawing at the eye, keeping the eye closed, and squealing. Within 10 minutes, the eyes had moderate erythema, moderate edema, and discharge. The corneas were opaque, the iris invisible. This remained unchanged up to 168 hours, when the test was terminated.

Source : The Dow Chemical Company

Reliability : (2) valid with restrictions

30.08.2001 (10)

5.3 SENSITIZATION

5.4 REPEATED DOSE TOXICITY

Type	:	
Species	:	rat
Sex	:	male/female
Strain	:	Fischer 344
Route of admin.	:	inhalation
Exposure period	:	6 hours/day
Frequency of treatm.	:	5 days/week for 4 weeks
Post exposure period	:	None
Doses	:	0, 0.5, 1, 2.5, or 5 ppm
Control group	:	yes, concurrent vehicle
LOAEL	:	= .5 - ppm
Method	:	EPA OPP 82-4
Year	:	1982
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4

Method : Inhalation exposures to CAC vapor or filtered air (control) were conducted under dynamic airflow conditions in 14.5 cubic foot stainless steel containers. Test material vapor was generated using a vaporization apparatus and mixed with filtered air to achieve the desired concentration. Nominal concentrations were calculated from this mixture. In addition, chamber concentrations were measured at regular intervals using a gas chromatograph/mass spectrometer. Groups of 10 rats, mice, and hamsters/sex were exposed to 0, 0.5, 1, 2.5, or 5 ppm for 6 hours/day, 5 days/week, for 4 weeks. Animals were observed daily during the test period. Body weights were recorded twice weekly. Blood samples were collected from animals which survived the study period, and clinical chemistry determination were conducted. All animals, including those which died prior to study termination, were submitted for gross necropsy examination. For animals which survived to study termination, brian, heart, liver, kidneys, and testes weights were collected. Samples of representative organs and tissues were saved in 10% neutral phosphate-buffered formalin. Tissues from up to half the dose groups were mounted for microscopic

examination.

Result : Exposure to CAC rsulted in grossly visible effects in the respiratory tract of rats inhaling 2.5 or 5 ppm; histopathologic changes were observed at doses as low as 0.5 ppm. These changes were a chronic response to an irritant, observed throughout the respiratory tract, most apparent and severe in the nasal region, and consisted of inflammation, hypertrophy, hyperplasia, and occasionally squamous metaplasia in the respiratory epithelium of the nasal mucosa. A NOEL was not established.

Source : The Dow Chemical Company

Reliability : (2) valid with restrictions
Difficulty in analytical method for assessing chamber concentrations led to calculated mean values with large standard deviations. For this reason, dose levels quoted are the mean minimum analytical chamber concentrations.

30.08.2001 (2)

5.5 GENETIC TOXICITY 'IN VITRO'

Type : Ames test
System of testing : TA98, TA100, TA1535, TA1537, TA1538
Test concentration : 0.5-500 micrograms/plate
Cycotoxic concentr. :
Metabolic activation : with and without
Result : negative
Method : other
Year : 1976
GLP : no data
Test substance : as prescribed by 1.1 - 1.4

Method : Standard methodology first developed by Ames, 1973. Arochlor 1254 was used to stimulate the metabolic activation system, derived from rat liver homogenate.

Source : The Dow Chemical Company

Reliability : (2) valid with restrictions

30.08.2001 (2)

Type : Yeast gene mutation assay
System of testing : Saccharomyces cerevisiae
Test concentration : 0.01, 0.1, 0.2, 0.3, 0.4, 0.5%
Cycotoxic concentr. : 0.4, 0.5%
Metabolic activation : with and without
Result : negative
Method : other
Year : 1976
GLP : no data
Test substance : as prescribed by 1.1 - 1.4

Method : Standard method for the in vitro yeast mitotic recombination assay. Arochlor 1254 was used to stimulate the metabolic activation system, derived from rat liver homogenate.

Source : The Dow Chemical Company

Reliability : (2) valid with restrictions

30.08.2001 (2)

5.6 GENETIC TOXICITY 'IN VIVO'

5.7 CARCINOGENICITY

5.8.1 TOXICITY TO FERTILITY

5.8.2 DEVELOPMENTAL TOXICITY/TERATOGENICITY

5.8.3 TOXICITY TO REPRODUCTION, OTHER STUDIES

5.9 SPECIFIC INVESTIGATIONS

5.10 EXPOSURE EXPERIENCE

5.11 ADDITIONAL REMARKS

6.1 ANALYTICAL METHODS

6.2 DETECTION AND IDENTIFICATION

7.1 FUNCTION

7.2 EFFECTS ON ORGANISMS TO BE CONTROLLED

7.3 ORGANISMS TO BE PROTECTED

7.4 USER

7.5 RESISTANCE

8.1 METHODS HANDLING AND STORING

8.2 FIRE GUIDANCE

8.3 EMERGENCY MEASURES

8.4 POSSIB. OF RENDERING SUBST. HARMLESS

8.5 WASTE MANAGEMENT

8.6 SIDE-EFFECTS DETECTION

8.7 SUBSTANCE REGISTERED AS DANGEROUS FOR GROUND WATER

8.8 REACTIVITY TOWARDS CONTAINER MATERIAL

(1) Unpublished data, The Dow Chemical Company, Midland, MI.

(2) Unpublished data, The Dow Chemical Company

(3) Meylan, W. (1997). SRC - AOP for Microsoft Windows, Version 1.84, Atmospheric half-life estimating software.

(4) Pritchard, H. O., and Skinner, H. A. (1950). The heats of hydrolysis of the chloro-substituted acetyl chlorides. J. Chem. Soc. 1950: 272-276.

(5) Use of Level I and Level III Fugacity-Based Environmental Equilibrium Partitioning Models to evaluate the Transport of Chloroacetyl Chloride (CAS No. 79-04-9). Unpublished data, The Dow Chemical Company.

(6) Kuhn and Pattard (1990). Algal tox tests. Water Res. 24: 31-38.

(7) Kuhn and Pattard (1990). Algal tox. tests. Water Res. 24: 31-38.

(8) Gerike and Gode (1990). The biodegradability and inhibitory threshold concentration of some disinfectants. Chemosphere 21: 799-812.

(9) Kuhn, et al. (1989). Results of the harmful effects of water pollutants to Daphnia magna in the 21-day reproduction test. Water Res. 23: 501-510.

(10) Unpublished data, The Monsanto Company

(11) Herzog, S. (1959). Cercetari experimentale asupra toxicitatii clorurii de cloracetil. Igiena. Bucharest 8: 135-144.

10.1 END POINT SUMMARY

10.2 HAZARD SUMMARY

10.3 RISK ASSESSMENT

I U C L I D

Data Set

Existing Chemical	:	ID: 79-11-8
CAS No.	:	79-11-8
Generic name	:	Chloroacetic acid

Producer Related Part

Company	:	The Dow Chemical Company
Creation date	:	24.01.2002

Substance Related Part

Company	:	The Dow Chemical Company
Creation date	:	12.10.2002
Memo	:	
Printing date	:	12.10.2002
Revision date	:	
Date of last Update	:	12.10.2002
Number of Pages	:	3
Chapter (profile)	:	
Reliability (profile)	:	
Flags (profile)	:	???

1.0.1 OECD AND COMPANY INFORMATION

Type	:	cooperating company
Name	:	The Dow Chemical Company
Partner	:	
Date	:	
Street	:	2020 Dow Center
Town	:	48674 Midland, Michigan
Country	:	United States
Phone	:	
Telefax	:	
Telex	:	
Cedex	:	

25.01.2002

1.0.2 LOCATION OF PRODUCTION SITE

1.0.3 IDENTITY OF RECIPIENTS

1.1 GENERAL SUBSTANCE INFORMATION

1.1.0 DETAILS ON TEMPLATE

1.1.1 SPECTRA

1.2 SYNONYMS

1.3 IMPURITIES

1.4 ADDITIVES

1.5 QUANTITY

1.6.1 LABELLING

1.6.2 CLASSIFICATION

1.7 USE PATTERN

1.7.1 TECHNOLOGY PRODUCTION/USE

1.8 OCCUPATIONAL EXPOSURE LIMIT VALUES

1.9 SOURCE OF EXPOSURE

Remark	:	Akzo manufactures MCA at its site in Hengelo (NL) by chlorination of acetic acid. Exposure could occur at the workplace during transport, or during discharge at the customer's site. Worker exposure measured in Hengelo is below 1 mg/m^3 (8 hr-TWA, Weel guide/USA)
Source	:	Akzo Nobel Chemicals b.v. Amersfoort
Remark	:	Substitution reaction of acetic acid by chlorine. Catalyst : acetic anhydride HCl obtained as by-product is used for production of 1,2-dichloroethane. Continuous process. One production site. Effluents to water treatment plants.
Source	:	Atochem Paris la Defense
Remark	:	Reduce exposure to an absolute minimum by use of a closed circuit. If necessary, use localized aspiration. The substance is sold exclusively for industrial uses. The substance is handled only by trained operators and the handling is reduced to a minimum.
Source	:	LAMBERTI S.p.A ALBIZZATE (VA)
Source	:	Metsa-Serla Chemicals Oy Aanekoski

1.10.1 RECOMMENDATIONS/PRECAUTIONARY MEASURES

1.10.2 EMERGENCY MEASURES

1.11 PACKAGING

1.12 POSSIB. OF RENDERING SUBST. HARMLESS

1.13 STATEMENTS CONCERNING WASTE

1.14.1 WATER POLLUTION

Classified by	:	KBwS (DE)
Labelled by	:	KBwS (DE)
Class of danger	:	2 (water polluting)
Country	:	Germany
Remark	:	Identification No. 227

Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(2) (3)

Classified by	:	KBwS (DE)
Labelled by	:	
Class of danger	:	2 (water polluting)
Country	:	Germany
Remark	:	Identification No. 227 (Water Hazard Class - WGK)
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main

(4) (5)

1.14.2 MAJOR ACCIDENT HAZARDS

Legislation	:	Stoerfallverordnung [Major Accident Regulation] (DE)
Substance listed	:	yes
No. in directive	:	
Country	:	Germany
Remark	:	Identification No.. 4c (materials and preparations classified as „toxic“)
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main

(6)

Legislation	:	other: Stoerfallverordnung (DE)
Substance listed	:	no
No. in directive	:	
Country	:	Germany
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(7)

1.14.3 AIR POLLUTION

Classified by	:	TA-Luft [TA Air] (DE)
Labelled by	:	TA-Luft (DE)
Number	:	3.1.7 (organic substances)
Class of danger	:	I
Country	:	Germany
Remark	:	Appendix E
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(3) (8)

Classified by	:	TA-Luft (DE)
Labelled by	:	
Number	:	3.1.7 (organic substances)
Class of danger	:	I
Country	:	Germany
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main

(9) (5)

1.15 ADDITIONAL REMARKS

Remark	:	Classified by German KBwS (Commission for Assessing Water-Polluting Materials) (Identification No. 227): WGK

(water pollution class) = 2 (water polluting)
Source : Akzo Nobel Chemicals b.v. Amersfoort

Remark : FDA: Monochloric acid is an indirect food additive for use

only as a component of adhesives
[21 CRF 175.105 (4/1/90)]
Source : Akzo Nobel Chemicals b.v. Amersfoort

Remark : The substance must be disposed of in accordance with current rules.

Hazardous merchandise from a transport standpoint, Class 6.1 - Un 1751
Source : LAMBERTI S.p.A ALBIZZATE (VA)

Source : EKA Nobel Skoghall AB Skoghall

Remark : Water pollution class 2
Source : BUNA GMBH Schkopau

Source : Metsa-Serla Chemicals Oy Aanekoski

1.16 LAST LITERATURE SEARCH

1.17 REVIEWS

1.18 LISTINGS E.G. CHEMICAL INVENTORIES

2.1 MELTING POINT

Value : < 18 ° C
Remark : Start
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : Aqueous solution

(3)

Value : < 18 ° C
Remark : Start
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : Aqueous solution
Reliability : (2) valid with restrictions
Outline of data is available

(5)

Value : 61.5 - 62.3 ° C
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : Melt and flakes

(3)

Value : 61.5 - 62.3 ° C
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : Melt and flakes
Reliability : (2) valid with restrictions
Outline of data is available

(5)

Value : = 62 ° C
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

(10)

Value : = 62 ° C
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Reliability : (2) valid with restrictions
Outline of data is available

(11)

2.2 BOILING POINT

Value : < 18 ° C at 1013 hPa
Decomposition :
Method : other: DIN 53171 [DIN = German Industry Standard]
Year :
GLP :
Test substance :
Remark : Start
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : Aqueous solution

(3)

Value	:	< 18 ° C at 1013 hPa
Decomposition	:	
Method	:	other: DIN 53171
Year	:	
GLP	:	
Test substance	:	
Remark	:	Start
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	Aqueous solution
Reliability	:	(2) valid with restrictions Outline of data is available

(5)

Value	:	= 189 ° C at 1013 hPa
Decomposition	:	
Method	:	other: DIN 53171
Year	:	
GLP	:	
Test substance	:	
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	Melt and flakes

(3) (10)

Value	:	= 189 ° C at 1013 hPa
Decomposition	:	
Method	:	other: DIN 53171
Year	:	
GLP	:	
Test substance	:	
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	Melt and flakes
Reliability	:	(2) valid with restrictions [Outline of data is available

(5) (11)

2.3 DENSITY

Type	:	density
Value	:	= 1.32 g/cm3 at 40° C
Method	:	other: DIN 51757
Year	:	
GLP	:	
Test substance	:	
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	Aqueous solution

(3)

Type	:	density
Value	:	= 1.32 g/cm3 at 40° C
Method	:	other: DIN 51757
Year	:	
GLP	:	
Test substance	:	
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main

Test substance : Aqueous solution
Reliability : (2) valid with restrictions
Outline of data is available

(5)

Type : relative density
Value : = 1.37 kg/m3 at 65° C
Method : other: DIN 51757
Year :
GLP :
Test substance :
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : Melt

(3)

Type : relative density
Value : = 1.37 kg/m3 at 65° C
Method : other: DIN 51757
Year :
GLP :
Test substance :
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : Melt
Reliability : (2) valid with restrictions
Outline of data is available

(5)

Type : relative density
Value : = 1.58 g/cm3 at ° C
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

(12)

Type : relative density
Value : = 1.58 g/cm3 at ° C
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Reliability : (2) valid with restrictions
Outline of data is available

(12)

Type : bulk density
Value : 750 - 850 kg/m3 at ° C
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : Flakes

(3) (10)

Type : bulk density
Value : 750 - 850 kg/m3 at ° C
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : Flakes
Reliability : (2) valid with restrictions
Outline of data is available

(5) (11)

2.3.1 GRANULOMETRY

2.4 VAPOUR PRESSURE

Value : ca. .2 hPa at 20° C
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : Flakes

(3) (10)

Value : ca. .2 hPa at 20° C
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : Flakes
Reliability : (2) valid with restrictions
Outline of data is available

(5) (11)

Value : = 1 hPa at 20° C
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

(13)

Value : = 1 hPa at 20° C
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Reliability : (2) valid with restrictions
Outline of data is available

(13)

Value : = 10 hPa at 20° C
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : Aqueous solution

(3)

Value : = 10 hPa at 20° C
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : Aqueous solution
Reliability : (2) valid with restrictions
Outline of data is available

(5)

Value : .087 hPa at 25° C
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

(14)

Value : .087 hPa at 25° C
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Reliability : (2) valid with restrictions
Outline of data is available

(14)

Value : ca. 2 hPa at 50° C
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

(10)

Value : ca. 2 hPa at 50° C
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Reliability : (2) valid with restrictions
Outline of data is available

(11)

Value : ca. 4.4 hPa at 65° C
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : Melt

(3)

Value : ca. 4.4 hPa at 65° C
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : Melt
Reliability : (2) valid with restrictions
Outline of data is available

(5)

Value : 43 hPa at 100° C
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

(15)

Value : = 43 hPa at 100° C
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Reliability : (2) valid with restrictions
Outline of data is available

(15)

Value : 190 hPa at 140° C
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

(15)

Value : 190 hPa at 140° C
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Reliability : (2) valid with restrictions
Outline of data is availbale

(15)

Value : 400 hPa at 160° C
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

(15)

Value : 400 hPa at 160° C
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Reliability : (2) valid with restrictions
Outline of data is available

(15)

2.5 PARTITION COEFFICIENT

Log pow : = -.51 at ° C
Method : other (calculated): by Leo's fragment constant method
Year :
GLP :
Test substance :
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

(16)

Log pow : = -.51 at ° C
Method : other (calculated): by Leo's fragment constant method
Year :
GLP :
Test substance :
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Reliability : (2) valid with restrictions
Calculation method recognized

(16)

Log pow : = .2 at ° C
Method : other (measured): method not stated
Year :
GLP :
Test substance :
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

(17)

Log pow : = .2 at ° C
Method : other (measured): method not stated
Year :
GLP :
Test substance :
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Reliability : (2) valid with restrictions
Study by a recognized institute in accordance with standard laboratory procedures

(17)

2.6.1 WATER SOLUBILITY

Value : = 3170 g/lLat 10 °C
Qualitative :
Pka : at 25 ° C
PH : at and ° C
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

(15)

Value : = 3170 g/L at 10 °C
Qualitative :
Pka : at 25 ° C
PH : at and ° C
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main

Reliability	:	(2) valid with restrictions Outline of data is available

(15)

Value	:	= 4210 g/l at 20 ° C
Qualitative	:	
Pka	:	at 25 ° C
PH	:	< 1 at 800 g/l and 20 ° C
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	Melt and flakes

(3) (10)

Value	:	= 4210 g/l at 20 ° C
Qualitative	:	
Pka	:	at 25 ° C
PH	:	< 1 at 800 g/l and 20 ° C
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	Melt and flakes
Reliability	:	(2) valid with restrictions Outline of data is available

(5) (11)

Value	:	= 19000 g/l at 50 ° C
Qualitative	:	
Pka	:	at 25 ° C
PH	:	at and ° C
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(15)

Value	:	= 19000 g/l at 50 ° C
Qualitative	:	
Pka	:	at 25 ° C
PH	:	at and ° C
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(2) valid with restrictions Outline of data is available

(15)

2.6.2 SURFACE TENSION

2.7 FLASH POINT

Value	:	= 126 ° C
Type	:	closed cup
Method	:	other: DIN 51758
Year	:	
GLP	:	
Test substance	:	
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(3) (10)

Value	:	= 126 ° C
Type	:	closed cup

Method	:	other: DIN 51758
Year	:	
GLP	:	
Test substance	:	
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(1) valid without restriction Study in accordance with national standard procedure /standard method (5) (11)

2.8 AUTO FLAMMABILITY

Value	:	= 460 ° C at
Method	:	other: DIN 51794
Year	:	1982
GLP	:	no
Test substance	:	
Remark	:	Ignition temperature
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(1) valid without restriction Study in accordance with national standard procedure/standard method (18)

2.9 FLAMMABILITY

2.10 EXPLOSIVE PROPERTIES

Result	:	other: ability to undergo dust explosion
Method	:	
Year	:	1997
GLP	:	no
Test substance	:	
Result	:	Monochloroacetic acid in the flake form delivered does not undergo dust explosion. Handling can generate a fine dust which when mixed with air at a high concentration is flammable. A dust explosion hazard during use does not exist even if a fine dust could accumulate in the filter unit. Because of the required high ignition energy, electric discharges do not cause ignition. It is also assumed that fine dust will interact with the moisture in the air to form a melt.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	The flakes are larger than 1 mm and in the form delivered do not undergo dust explosion. To assess the dust explosion hazard, the flakes were ground, and the powder was tested with the modified Harmann apparatus. Only when an energy-rich ignition source (incandescent spiral-wound filament) was used, flame formation was observed at high dust concentration.
Reliability	:	(1) valid without restriction Study in accordance with national standard procedure/standard method (19)

2.11 OXIDIZING PROPERTIES

Result	:	no oxidizing properties
Method	:	other: combustion test
Year	:	1989
GLP	:	no
Test substance	:	
Result	:	Combustion test on material as delivered: combustion rating 1 (no combustion) 50 : 50 mix with diatomaceous earth: combustion rating 2 (short-lived flash, no spread)
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(2) valid with restrictions Outline of data is available

(20)

2.12 ADDITIONAL REMARKS

Remark	:	Action on non-noble metals generates hydrogen. Hazardous decomposition products: hydrogen chloride (HCl) Hazardous reactions: with amines and alkalies (caustic solutions)
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(10)

Remark	:	pKa = 2.86
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(21)

Remark	:	Ignition temperature: 470 °C (method: DIN 51794) Lower ignition limit: 8 vol. % at 1013 mbar
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(3) (10)

Remark	:	Action on non-noble metals generates hydrogen. Hazardous decomposition products: hydrogen chloride (HCl) Hazardous reactions: with amines and alkalies (caustic solutions)
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(2) valid with restrictions Outline of data is available

(11)

Remark	:	pKa: 2.86
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(2) valid with restrictions Evaluation understandable and acceptable

(21)

Remark	:	Ignition temperature: 470 °C (method: DIN 51794) Lower ignition limit: 8 vol-% at 1013 mbar
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(1) valid without restriction Study in accordance with national standard procedure/standard method

(5) (11)

3.1.1 PHOTODEGRADATION

Type	:	air
Light source	:	
Light spect.	:	nm
Rel. intensity	:	based on itensity of sunlight
Indirect photolysis		
Sensitizer	:	OH
Conc. of sens.	:	500000 molecules/cm^3
Rate constant	:	= .000000000000278 cm^3/(molecule*sec)
Degradation	:	= 50% after 58 days
Deg. Product	:	
Method	:	other (calculated): Atkinson (1988)
Year	:	
GLP	:	
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(22)

Type	:	air
Light source	:	
Light spect.	:	nm
Rel. intensity	:	based on intensity of sunlight
Indirect photolysis		
Sensitizer	:	OH
Conc. of sens.	:	500000 molecules/cm^3
Rate constant	:	= .000000000000278 cm^3/(molecule*sec)
Degradation	:	= 50 % after 58 days
Deg. Product	:	
Method	:	other (calculated): Atkinson (1988)
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Calculation method recognized

(22)

Type	:	water
Light source	:	other: mercury vapor lamp
Light spect.	:	= 254 nm
Rel. intensity	:	based on intensity of sunlight
Deg. Product	:	
Method	:	
Year	:	
GLP	:	
Test substance	:	other TS
Remark	:	Photolysis of 1M monochloroacetic acid in aqueous solution resulted in the formation of chloride, CO_2, CO and methyl chloride.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	Initial pH: 7; temperature: 26 °C
Test substance	:	monochloroacetic acid

(23)

Type	:	water
Light source	:	other: mercury vapor lamp
Light spect.	:	= 254 nm
Rel. intensity	:	based on intensity of sunlight
Deg. Product	:	
Method	:	
Year	:	
GLP	:	
Test substance	:	other TS
Remark	:	Photolysis of 0.5M monochloroacetic acid in aqueous solution resulted in the formation of chloride, CO_2, glycolic acid, acetic acid (not when O_2-saturated), formaldehyde and methane (not when when O_2-saturated).
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	Temperature: 30 °C; pH-Wert: not given
Test substance	:	Monochloroacetic acid

(24) (25)

Type	:	water
Light source	:	other: mercury vapor lamp
Light spect.	:	= 254 nm
Rel. intensity	:	based on intensity of sunlight
Deg. Product	:	
Method	:	
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Photolysis of 1M monochloroacetic acid in aqueous solution resulted in the formation of chloride, CO_2, CO and methyl chloride
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	Initial pH: 7; temperature: 26 °C
Test substance	:	Monochloroacetic acid
Reliability	:	(2) valid with restrictions Evaluation is comprehensible and acceptable

(23)

Type	:	water
Light source	:	other: mercury vapor lamp
Light spect.	:	= 254 nm
Rel. intensity	:	based on intensity of sunlight
Deg. Product	:	
Method	:	
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Photolysis of 0.5M monochloroacetic acid in aqueous solution resulted in the formation of chloride, CO_2, glycolic acid, acetic acid (not when O_2-saturated), formaldehyde and methane (not when when O_2-saturated)..
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	Temperature: 30 °C; pH: not given
Test substance	:	Monochloroacetic acid
Reliability	:	(2) valid with restrictions Evaluation is comprehensible and acceptable

(26) (25)

3.1.2 STABILITY IN WATER

Type	:	abiotic
t1/2 pH4	:	at °C
t1/2 pH7	:	at °C
t1/2 pH9	:	at °C
Deg. Product	:	
Method	:	
Year	:	
GLP	:	
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	Aqueous solutions of monochloroacetic acid undergo very slow hydrolysis with formation of glycolic acid, depending on the temperature. After 30 days, the degree of hydrolysis at 20 °C is 0.01%, at 50 °C it is 0.15% and at 70 ° it is 1%.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(27)

Type	:	abiotic
t1/2 pH4	:	at °C
t1/2 pH7	:	at °C
t1/2 pH9	:	at °C
Deg. Product	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	Aqueous solutions of monochloroacetic acid undergo very slow hydrolysis with formation of glycolic acid, depending on the temperature. After 30 days, the degree of hydrolysis at 20 °C is 0.01%, at 50 °C it is 0.15% and at 70 ° it is 1%.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(2) valid with restrictions Evaluation is comprehensible and acceptable

(28)

3.1.3 STABILITY IN SOIL

3.2 MONITORING DATA

Type of measurement	:	background concentration
Medium	:	drinking water
Method	:	
Concentration	:	
Remark	:	In the USA, in 1988 und 1989, monochloroacetic acid was found in drinking water at a concentrations of up to 1.2 µg/L (quarterly median values) after disinfection (chlorination, ozonation). The studies of water samples (n = 140) from 35 water-treatment plants were carried out in 1988 on a quarterly basis and in winter 1989.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	Monochloroacetic acid

(29) (30)

Type of measurement	:	background concentration
Medium	:	drinking water
Method	:	
Concentration	:	
Remark	:	In the USA, in 1988 und 1989, monocholoracetic acid was found in drinking water at a concentrations of up to 1.2 µg/L (quarterly median values) after disinfection (chlorination, ozonation). The studies of water samples (n = 140) from 35 water-treatment plants were carried out in 1988 on a quarterly basis and in winter 1989.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	Monochloressigsaure

(29) (30)

3.3.1 TRANSPORT BETWEEN ENVIRONMENTAL COMPARTMENTS

Type	:	adsorption
Media	:	other: soil water - soil organic matter
Air (level I)	:	
Water (level I)	:	
Soil (level I)	:	
Biota (level II / III)	:	
Soil (level II / III)	:	
Method	:	other: calculated by the method of Kenaga und Goring (1980)
Year	:	
Remark	:	According to Blume (1990), only very slight to slight soil sorption is to be expected.
Result	:	Soil sorption constant Koc: 30.6 (for the undissociated acid)
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(31) (32)

Type	:	adsorption
Media	:	other: soil water - soil organic matter
Air (level I)	:	
Water (level I)	:	
Soil (level I)	:	
Biota (level II / III)	:	
Soil (level II / III)	:	
Method	:	other: calculated by the method of Kenaga und Goring (1980)
Year	:	.
Remark	:	According to Blume (1990), only very slight to slight soil sorption is to be expected
Result	:	Soil sorption constant Koc: 30.6 (for the undissociated acid)
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(2) valid with restrictions Calculation method is recognized

(33) (32)

Type	:	volatility
Media	:	water – air
Air (level I)	:	
Water (level I)	:	
Soil (level I)	:	

Biota (level II / III)	:	
Soil (level II / III)	:	
Method	:	other: calculated
Year	:	
Remark	:	According to Thomas (1982): monochloroacetic acid is to be viewed as a substance that does not volatilize from aqueous solution
Result	:	Henry constant: 4.2 x 10E-4 Pa x m^3 x mol E-1
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(34)

Type	:	volatility
Media	:	water - air
Air (level I)	:	
Water (level I)	:	
Soil (level I)	:	
Biota (level II / III)	:	
Soil (level II / III)	:	
Method	:	other: calculated
Year	:	
Remark	:	According to Thomas (1982): monochloroacetic acid is to be viewed as a substance that does not volatilize from aqueous solution.
Result	:	Henry constant: 4.2 x 10E-4 Pa x m^3 x mol E-1
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(2) valid with restrictions Method of calulation recognized

(34)

3.3.2 DISTRIBUTION

3.4 MODE OF DEGRADATION IN ACTUAL USE

3.5 BIODEGRADATION

Type	:	aerobic
Inoculum	:	activated sludge, non-adapted
Concentration	:	100 mg/L related to test substance related to
Contact time	:	
Degradation	:	= 65 % after 21 day
Result	:	
Deg. Product	:	
Method	:	OECD Guide-line 301 C "Ready Biodegradability: Modified MITI Test (I)"
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(35)

Type	:	aerobic
Inoculum	:	activated sludge, non-adapted
Concentration	:	100 mg/L related to test substance related to
Contact time	:	

Degradation	:	= 65 % after 21 day
Result	:	
Deg. Product	:	
Method	:	OECD Guideline 301 C "Ready Biodegradability: Modified MITI Test (I)"
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Guideline study

(35)

Type	:	aerobic
Inoculum	:	activated sludge, adapted
Concentration	:	5 mg/L related to test substance related to
Contact time	:	
Degradation	:	100 % after 28 days
Result	:	
Deg. Product	:	
Method	:	OECD Guideline 301 D "Ready Biodegradability: Closed Bottle Test"
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Degree of degradation = % THOD
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(36)

Type	:	aerobic
Inoculum	:	activated sludge, adapted
Concentration	:	5 mg/L related to test substance related to
Contact time	:	
Degradation	:	100 % after 28 days
Result	:	
Deg. Product	:	
Method	:	OECD Guideline 301 D "Ready Biodegradability: Closed Bottle Test"
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Degree of degradation = % THOD
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction

(36)

Type	:	aerobic
Inoculum	:	activated sludge
Contact time	:	
Degradation	:	ca. 53 % after 28 days
Result	:	
Kinetic of test substance	:	7 days ca. 13 **%** 14 days = 26 **%** 21 days = 41 **%** **%** **%**

Deg. Product	:	
Method	:	OECD Guideline 301 E "Ready Biodegradability: Modified OECD Screening Test"
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	Monochloroacetic acid

(37)

Type	:	aerobic
Inoculum	:	activated sludge
Contact time	:	
Degradation	:	ca. 53 % after 28 days
Result	:	
Kinetic of test substance	:	7 days ca. 13 **%** 14 days = 26 **%** 21 days = 41 **%** **%** **%**
Deg. Product	:	
Method	:	OECD Guideline 301 E "Ready Biodegradability: Modified OECD Screening Test"
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	Monochloroacetic acid
Reliability	:	(1) valid without restriction Guideline study

(37)

Type	:	aerobic
Inoculum	:	activated sludge
Concentration	:	5 mg/L related to DOC (Dissolved Organic Carbon) related to
Contact time	:	
Degradation	:	= 100 % after 28 days
Result	:	
Deg. Product	:	
Method	:	OECD Guideline 301 E "Ready Biodegradability: Modified OECD Screening Test"
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Degree of degradation = % chloride release In an analogous test with chloride-free nutrient solution, the degree of chloride release was also 100%.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(36)

Type	:	aerobic
Inoculum	:	activated sludge
Concentration	:	5 mg/L related to DOC (Dissolved Organic Carbon) related to
Contact time	:	
Degradation	:	= 100 % after 28 days

Result	:	
Deg. Product	:	
Method	:	OECD Guideline 301 E "Ready Biodegradability: Modified OECD Screening Test"
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Degree of degradation = % chloride release In an analogous test with chloride-free nutrient solution, the degree of chloride release was also 100 %.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	Monochlorpacetic acid
Reliability	:	(1) valid without restriction Guideline study

(36)

Type	:	aerobic
Inoculum	:	activated sludge
Concentration	:	1000 mg/L related to test substance related to
Contact time	:	
Degradation	:	= 100 % after 28 days
Result	:	
Deg. Product	:	
Method	:	OECD Guideline 302 B "Inherent Biodegradability: Modified Zahn-Wellens Test"
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(36)

Type	:	aerobic
Inoculum	:	activated sludge
Concentration	:	1000 mg/L related to test substance related to
Contact time	:	
Degradation	:	= 100 % after 28 days
Result	:	
Deg. Product	:	
Method	:	OECD Guideline 302 B "Inherent Biodegradability: Modified Zahn-Wellens Test"
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Guideline study

(36)

Type	:	aerobic
Inoculum	:	activated sludge, industrial
Concentration	:	1140 mg/L related to test substance related to
Contact time	:	
Degradation	:	= 99 % after 10 days
Result	:	

Kinetic of test substance	:	3 hour(s) = 0 **%** 3 days = 9 **%** 6 days = 63 **%** 8 days = 85 **%** **%**
Deg. Product	:	
Method	:	OECD Guide-line 302 B "Inherent Biodegradability: Modified Zahn-Wellens Test"
Year	:	1986
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	Adsorption on activated sludge within 3 hours from the start of the test was 21 %. After 10 days, a chloride ion analysis was performed. The amount found was 438 mg/L, whereas the theoretical value was 428.5 mg/L. The chloride ion analysis thus confirmed complete mineralization, including the portion initially adsorbed within 3 hours.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(38)

Type	:	aerobic
Inoculum	:	activated sludge, industrial
Concentration	:	1140 mg/L related to test substance related to
Contact time	:	
Degradation	:	= 99 % after 10 days
Result	:	
Kinetic of test substance	:	3 hour(s) = 0 **%** 3 days = 9 **%** 6 days = 63 **%** 8 days = 85 **%** **%**
Deg. Product	:	
Method	:	OECD Guideline 302 B "Inherent Biodegradability: Modified Zahn-Wellens Test"
Year	:	1986
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	Adsorption on activated sludge within 3 hours from the start of the test was 21 %. After 10 days, a chloride ion analysis was performed. The amount found was 438 mg/L, whereas the theoretical value was 428.5 mg/L.. The chloride ion analysis thus confirmed complete mineralization, including the portion initially adsorbed within 3 hours..
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(1) valid without restriction Guideline study

(39)

Type	:	aerobic
Inoculum	:	activated sludge, industrial
Concentration	:	570 mg/L: related to test substance related to
Contact time	:	
Degradation	:	= 100 % after 8 days
Result	:	

Kinetic of test substance	:	3 hour(s) = 0 **%** 1 day = 11 **%** 3 days = 36 **%** 6 days = 86 **%** **%**
Deg. Product	:	
Method	:	OECD Guideline 302 B "Inherent Biodegradability: Modified Zahn-Wellens Test"
Year	:	1986
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(38)

Type	:	aerobic
Inoculum	:	activated sludge, industrial
Concentration	:	570 mg/L related to test substance related to
Contact time	:	
Degradation	:	= 100 % after 8 days
Result	:	
Kinetic of test substance	:	3 hour(s) = 0 **%** 1 day = 11 **%** 3 days = 36 **%** 6 days = 86 **%** **%**
Deg. Product	:	
Method	:	OECD Guideline 302 B "Inherent Biodegradability: Modified Zahn-Wellens Test"
Year	:	1986
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(1) valid without restriction Guideline study

(39)

Type	:	aerobic
Inoculum	:	Pseudomonas putida (Bacteria)
Deg. Product	:	
Method	:	other: determination of dehalogenase activity in static and continuous culture (chemostat)
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Pseudomonas putida PP3012 and PP3013 can utilize monochloroacetic acid as the only source of energy and carbon double mutants, adapted
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(40)

Type	:	aerobic
Inoculum	:	Pseudomonas putida (bacteria)
Deg. Product	:	
Method	:	other: determination of dehalogenase activity in static and continuous culture (chemostat)
Year	:	

GLP	:	no data
Test substance	:	other TS
Remark	:	Pseudomonas putida PP3012 and PP3013 can utilize monochloroacetic acid as the only source of energy and carbon, double mutants, adapted
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Evaluation is comprehensible and acceptable

(40)

Type	:	aerobic
Inoculum	:	activated sludge, non-adapted
Concentration	:	9 mg/L related to DOC (Dissolved Organic Carbon) related to
Contact time	:	
Degradation	:	14 - 24 % after 7 days
Result	:	
Deg. Product	:	
Method	:	other: OECD Guideline 301 B "Ready Biodegradability: Modified Sturm-Test“ or OECD Guideline 301 E "Ready Biodegradability: Modified OECD Screening Test"
Year	:	
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	Degree of degradatioin calculated from $ThCO_2$ (theoretical CO_2 content of the test substance); the 9 mg/L concentration used had an inhibiting effect on the microflora
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	Inoculum 8.3 mg of dry substance/mL

(41)

Type	:	aerobic
Inoculum	:	activated sludge, non-adapted
Concentration	:	4.5 mg/L related to DOC (Dissolved Organic Carbon) related to
Contact time	:	
Degradation	:	73 % after 7 days
Result	:	
Deg. Product	:	
Method	:	other: OECD Guideline 301 B "Ready Biodegradability: Modified Sturm-Test" oder OECD Guideline 301 E "Ready Biodegradability: Modified OECD Screening Test"
Year	:	
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	Degree of degradation calculated from $ThCO_2$ (theoretical CO_2 content of the test substance)
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	Inoculum: 4.2 mg of dry substance/mL

(41)

Type	:	aerobic
Inoculum	:	activated sludge, non-adapted
Concentration	:	9 mg/L related to DOC (Dissolved Organic Carbon) related to
Contact time	:	
Degradation	:	14 - 24 % after 7 days

Result	:	
Deg. Product	:	
Method	:	other: OECD Guideline 301 B "Ready Biodegradability: Modified Sturm-Test" or OECD Guideline 301 E "Ready Biodegradability: Modified OECD Screening Test"
Year	:	
GLP	:	no data
Test substance	:	as prescribed by 1.1 – 1.4
Remark	:	Degree of degradatioin calculated from $ThCO_2$ (theoretical CO_2 content of the test substance); the 9 mg/L concentration used had an inhibiting effect on the microflora
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	Inoculum: 8.3 mg of dry substance/mL
Reliability	:	(1) valid without restriction Guideline study

(41)

Type	:	aerobic
Inoculum	:	activated sludge, non-adapted
Concentration	:	4.5 mg/L related to DOC (Dissolved Organic Carbon) related to
Contact time	:	
Degradation	:	73 % after 7 days
Result	:	
Deg. Product	:	
Method	:	other: OECD Guideline 301 B "Ready Biodegradability: Modified Sturm-Test" oder OECD Guideline 301 E "Ready Biodegradability: Modified OECD Screening Test"
Year	:	
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	Degree of degradatioin calculated from $ThCO_2$ (theoretical CO_2 content of the test substance
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	Inoculum: 4.2 mg of dry substance/mL
Reliability	:	(1) valid without restriction Guideline study

(41)

Type	:	aerobic
Inoculum	:	activated sludge, industrial
Contact time	:	
Degradation	:	> 90 % after 5.5 days
Result	:	
Deg. Product	:	
Method	:	other: stationary test by Zahn-Wellens method
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	<1000 mg/L related to COD (Chemical Oxygen Demand) In an analogous test with chloride-free nutrient solution, the degree of chloride release was also 100 %.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	The test was carried out by procedures in use at the time of testing
Test substance	:	monochloroacetic acid

(42)

Type	:	aerobic
Inoculum	:	activated sludge, industrial
Contact time	:	
Degradation	:	> 90 % after 5.5 days
Result	:	
Deg. Product	:	
Method	:	other: Zahn-Wellens test
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	<1000 mg/L related to COD (Chemical Oxygen Demand) Degree of degradation = % chloride release In an analogous test with chloride-free nutrient solution, the degree of chloride release was also 100 %.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	The test was carried out by procedures in use at the time of testing
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study by a recognized institute in accordance with standard laboratory procedures

(42)

Type	:	anaerobic
Inoculum	:	other bacteria: methanogenic bacteria, adapted
Concentration	:	5 mg/L related to test substance related to
Contact time	:	
Degradation	:	86 % after 2 days
Result	:	
Deg. Product	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Confirmation of degradation under anaerobic conditions by detection of metabolites; degradation products: methane 11 %, CO_2 60 %, chloride ions
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	Inoculum immobilized on activated carbon carriers; the test was performed in a Hungate container
Test substance	:	[2-14C] monochloroacetic acid
Reliability	:	(2) valid with restrictions Evaluation is comprehensible and acceptable

(43)

Type	:	anaerobic
Inoculum	:	other bacteria: methanogenic bacteria, adapted
Concentration	:	11mg/L related to test substance related to
Contact time	:	
Degradation	:	90 % after 2 days
Result	:	
Deg. Product	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Confirmation of degradation under anaerobic conditions by detection of metabolites; degradation products: methane 12 %, CO_2 74 %, chloride

ions

Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main

Test condition : Inoculum immobilized on activated carbon carriers; the test was carried out in a Hungate container

Test substance : [2-14C] monochloroacetic acid

Reliability : (2) valid with restrictions
Evaluation is comprehensible and acceptable

(43)

Type : anaerobic

Inoculum : other bacteria: methanogenic bacteria, adapted

Concentration : 280 mg/L related to test substance
related to

Contact time :

Degradation : = 100 % after 2 days

Result :

Deg. Product :

Method : other: no data

Year :

GLP : no data

Test substance : other TS

Remark : Confirmation of degradation under anaerobic conditions by detection of metabolites; degradation product: glycolate

Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main

Test condition : Inoculum immobilized on activated carbon carriers; degree of degradation 100 %, based on chloride ions, 84 % based on methane; the test was carried out in a Hungate container

Test substance : monochloroacetic acid GC analysis

Reliability : (2) valid with restrictions
Evaluation is comprehensible and acceptable

(43)

Type : anaerobic

Inoculum : other bacteria: methanogenic bacteria, adapted

Concentration : 850 mg/L related to test substance
related to

Deg. Product :

Method : other: no data

Year :

GLP : no data

Test substance : other TS

Remark : Confirmation of degradation under anaerobic conditions by detection of metabolites; degradation products: glycolate, HCO_3, methane

Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main

Test condition : Inoculum immobilized on activated carbon carriers; test duration: 22 hours; the test was performed in an NMR container

Test substance : [2-13C] monochloroacetic acid

Reliability : (2) valid with restrictions
Evaluation is comprehensible and acceptable

(43)

Type : anaerobic

Inoculum : other bacteria: methanogenic bacteria, adapted

Concentration : 5 mg/L related to test substance
related to

Contact time :

Degradation : 86 % after 2 days

Result :

Deg. Product	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Confirmation of degradation under anaerobic conditions by detection of metabolites; degradation products: methane 11%, CO_2 60%, chloride ions
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	Inoculum immobilized on activated carbon carriers; the test was carried out in a Hungate container
Test substance	:	[2-14C] monochloroacetic acid

(43)

Type	:	anaerobic
Inoculum	:	other bacteria: methanogenic bacteria, adapted
Concentration	:	11 mg/L related to test substance related to
Contact time	:	
Degradation	:	90 % after 2 days
Result	:	
Deg. Product	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Confirmation of degradation under anaerobic conditions by detection of metabolites; degradation products: methane 12%, CO_2 74%, chloride ions
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	Inoculum immobilized on activated carbon carriers; the test was performed in a Hungate container
Test substance	:	[2-14C] monochloroacetic acid

(43)

Type	:	anaerobic
Inoculum	:	other bacteria: methanogenic bacteria, adapted
Concentration	:	280 mg/L related to test substance related to
Contact time	:	
Degradation	:	= 100 % after 2 days
Result	:	
Deg. Product	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Confirmation of degradation under anaerobic conditions by detection of metabolites; degradation product: glycolate
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	Inoculum immobilized on activated carbon carriers; degree of degradation 100 % based on chloride ions, 84 % based on methane; the test was carried out in a Hungate container
Test substance	:	monochloroacetic acid; GC analysis

(43)

Type	:	anaerobic
Inoculum	:	other bacteria: methanogenic bacteria, adapted
Concentration	:	850 mg/L related to test substance

related to

Deg. Product	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Confirmation of degradation under anaerobic conditions by detection of metabolites; degradation products: glycolate, HCO_3, methane, CO_2
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	Inoculum immobilized on activated carbon carriers; test duration 22 hours; the test was carried out in an NMR container
Test substance	:	[2-13C] monochloroacetic acid

(43)

3.6 BOD5, COD OR BOD5/COD RATIO

3.7 BIOACCUMULATION

3.8 ADDITIONAL REMARKS

Remark	:	Because of its antimicrobial action, monochloroacetic acid is used as an additive to wine and other beverages. In German and foreign red and white wines, monochloroacetic acid was not detected by thin-layer chromatography (detection limit: 1 mg/L).
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(44)

Remark	:	In the Federal Republic of Germany (as of 1992) monochloroacetic acid is not allowed as an additive to either food or wine.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(45) (46)

Remark	:	Because of its antimicrobial action, monochloroacetic acid is used as an additive to wine and other beverages. In German and foreign red and white wines, monochloroacetic acid was not detected by thin-layer chromatography (detection limit: 1 mg/L).
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid

(44)

Remark	:	In the Federal Republic of Germany (as of 1992) monochloroacetic acid is not allowed as an additive to either food or wine
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main

(47) (48)

4.1 ACUTE/PROLONGED TOXICITY TO FISH

Type	:	semistatic
Species	:	Pimephales promelas (fish, fresh water)
Exposure period	:	96 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no data
LC50	:	= 145
Method	:	other: no data
Year	:	
GLP	:	no
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(3) invalid Documentation insufficient for evaluation

(49)

Type	:	static
Species	:	Brachydanio rerio (fish, fresh water)
Exposure period	:	12 days
Unit	:	mg/L
Analytical monitoring	:	no
NOEC	:	= 320
Method	:	other: Internal Sop CRL-T37: Test with embryonal disorder development
Year	:	1985
GLP	:	no data
Test substance	:	other TS
Remark	:	At a concentration of 560 mg/L, the following effects were noted: - hatching difficulties - spine deformities - kidney function problems and blood circulation disturbances - elevated mortality rate at the end of the test.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	pH: 8.0 - 8.2; temperature: 23 - 27 °C; test parameter: survival rate (eggs + fish), disorders of embryonal development, floating {?} ability of hatched fish
Test substance	:	monochloroacetic acid

(50)

Type	:	static
Species	:	Brachydanio rerio (fish, fresh water)
Exposure period	:	12 days
Unit	:	mg/l
Analytical monitoring	:	no
NOEC	:	= 320
Method	:	other: Internal Sop CRL-T37: Test with embryonal disorder development
Year	:	1985
GLP	:	no data
Test substance	:	other TS
Remark	:	At a concentration of 560 mg/L , the following effects were noted: - hatching difficulties - spinal deformities - kidney function disorders and blood circulation disordres - elevated mortality rate at the end of the test.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main

Test condition	:	pH: 8.0 - 8.2; temperature: 23 – 27 °C; Test parameters: survival rate (eggs + fish), disorders of embryonal development, floating perfomance of hatched fish
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Study in accordance with national standard procedure/standard method (51)
Type	:	static
Species	:	Leuciscus idus melanotus (fish, fresh water)
Exposure period	:	96 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no
LC0	:	= 100
LC50	:	100 - 500
Method	:	other: internal guideline of Hoechst AG
Year	:	1979
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	In the 1 - 100 mg/L test groups (pH 8.3 - 8.7) 0 % lethality. Ati 500 mg/L (pH 3.8) 100 % of the fish died 78 - 173 min after addition of the preparation. Based on macroscopic findings (burning of the gills and skin; behavior: gasping breathing, elevated breathing rate, equilibrium disorders, floating on the water surface etc.), death is attributable to the low pH.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main (52)
Type	:	static
Species	:	Leuciscus idus melanotus (fish, fresh water)
Exposure period	:	96 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no
LC0	:	= 100
LC50	:	100 - 500
Method	:	other: internal guideline of Hoechst AG
Year	:	1979
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	In the 1 - 100 mg/L test groups (pH 8.3 - 8.7) 0 % lethality. At 500 mg/L (pH 3.8) 100 % of the fish died 78 - 173 min after addition of the preparation. Based on macroscopic findings (burning of the gills and skin; behavior: gasping breathing, elevated breathing rate, equilibrium disorders, floating on the water surface etc.), death is attributable to the low pH. .
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(2) valid with restrictions Study in accordance with standard laboratory procedures by a recognized institute (53)
Type	:	static
Species	:	Poecilia reticulata (fish, fresh water)
Exposure period	:	96 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no data
LC50	:	= 369

Method	:	other: NEN 6504. Water. Determination of toxicity with the aid of Poecilia reticulata
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	pH: 8.0 - 8.3; temperature: 24 – 26 °C
Test substance	:	monochloroacetic acid

(50)

Type	:	static
Species	:	Poecilia reticulata (fish, fresh water)
Exposure period	:	96 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no data
LC50	:	= 369
Method	:	other: NEN 6504. Water. Determination of toxicity with the aid of Poecilia reticulata
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	pH: 8.0 - 8.3; temperature: 24 – 26 °C
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Study in accordance with national standard laboratory procedure/standard method

(51)

4.2 ACUTE TOXICITY TO AQUATIC INVERTEBRATES

Type	:	
Species	:	Daphnia magna (Crustacea)
Exposure period	:	24 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no
EC50	:	= 79
Method	:	other: determination of biological damage to small crayfish caused by water-polluting substances
Year	:	
GLP	:	no
Test substance	:	other TS
Remark	:	Not neutralized; nominal concentration
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study according to standard laboratory procedures by recognized institute

(37)

Type :
Species : Daphnia magna (Crustacea)

Exposure period : 24 hour(s)
Unit : mg/L
Analytical monitoring : no
EC50 : = 427
Method : other: determination of biological damage to small crayfish caused by water-polluting substances
Year :
GLP : no
Test substance : other TS
Remark : determined in neutralized condition; nominal concentration
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid
Reliability : (2) valid with restrictions
Study according to standard laboratory procedures by recognized institute

(37)

Type :
Species : Daphnia magna (Crustacea)
Exposure period : 24 hour(s)
Unit : mg/L
Analytical monitoring : no
EC50 : = 79
Method : other: determination of biological damage to small crayfish caused by water-polluting substances
Year :
GLP : no
Test substance : other TS
Remark : not neutralized; nominal concentration
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(37)

Type :
Species : Daphnia magna (Crustacea)
Exposure period : 24 hour(s)
Unit : mg/L
Analytical monitoring : no
EC50 : = 427
Method : other: determination of biological damage to small crayfish caused by water-polluting substances
Year :
GLP : no
Test substance : other TS
Remark : determined in neutralized condition; nominal concentration
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(37)

Type :
Species : Daphnia magna (Crustacea)
Exposure period : 48 hour(s)
Unit : mg/L
Analytical monitoring : no data
EC0 : = 55
EC50 : = 77

EC100	:	= 107
Method	:	other: Daphniae short-term test, DIN 38412 Part 11, Determination of the Action of Substances Present in Water on Small Crayfish
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	95 % confidence limits: EC50: 71 - 85 mg/L
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	pH: ≥ 7
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid with restrictions Study according to standard laboratory procedures by recognized institute

(54)

Type	:	
Species	:	Daphnia magna (Crustacea)
Exposure period	:	48 hour(s)
Unit	:	mg/L
Analytical monitoring	:	
EC0	:	= 55
EC50	:	= 77
EC100	:	= 107
Method	:	other: Daphniae short-term test, DIN 38412 Part 11, Determination of the Action of Substances Present in Water on Small Crayfish
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	95 % confidence limits: EC50: 71 - 85 mg/L
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	pH: ≥ 7
Test substance	:	monochloroacetic acid

(54)

Type	:	
Species	:	Daphnia magna (Crustacea)
Exposure period	:	24 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no data
EC50	:	= 180
Method	:	other: ISO 6341
Year	:	
GLP	:	no data
Test substance	:	no data
Remark	:	It is unclear whether and how the test medium was neutralized
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(3) invalid Documentation insufficient for evaluation

(55)

Type	:	
Species	:	Daphnia magna (Crustacea)
Exposure period	:	48 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no
EC50	:	= 88

Method	:	other: NEN 6501. Water. Determination of acute toxicity with the aid of Daphnia magna
Year	:	1985
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	pH. 8.1 - 8.2; temperature: 20 °C
Test substance	:	monochloroacetic acid

(50)

Type	:	
Species	:	Daphnia magna (Crustacea)
Exposure period	:	48 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no
EC50	:	= 88
Method	:	other: NEN 6501. Water. Determination of acute toxicity with the aid of Daphnia magna
Year	:	1985
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	pH: 8.1 - 8.2; temperature: 20 °C
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Study in accordance with national standard procedure/standard method

(51)

Type	:	
Species	:	Daphnia magna (Crustacea)
Exposure period	:	21 day
Unit	:	mg/L
Analytical monitoring	:	no data
NOEC	:	= 32
Method	:	other: [German] Federal Office for the Environment (1984): preliminary test proposal: "Extended Toxicity Test for Daphnia magna"
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Parameters studied: reproduction rate, mortality and time of appearance of first offspring
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	pH: not less than 7; deviation of concentration measured at the end of the test from the nominal concentration is less than 20 %
Test substance	:	monochloroacetic acid

(56)

Type	:	
Species	:	Daphnia magna (Crustacea)
Exposure period	:	48 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no data
EC50	:	= 75
Method	:	other: no data
Year	:	
GLP	:	no
Test substance	:	no data
Remark	:	It is unclear whether and how the test medium was neutralized
Source	:	Hoechst AG Frankfurt/Main

		Clariant GmbH Frankfurt am Main
Reliability	:	(3) invalid Documentation insufficient for evaluation

(49)

4.3 TOXICITY TO AQUATIC PLANTS E.G. ALGAE

Species	:	Scenedesmus quadricauda (Algae)
Endpoint	:	growth rate
Exposure period	:	8 day
Unit	:	mg/L
Analytical monitoring	:	no
EC3	:	= .13
Method	:	other: determination of biological damage to green algae caused by water-polluting substances
Year	:	
GLP	:	no
Test substance	:	other TS
Remark	:	EC3 = toxic limiting concentration 3 %; no further data
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	neutralized
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Study in accordance with national standard procedure/standard method

(37)

Species	:	Scenedesmus quadricauda (Algae)
Endpoint	:	growth rate
Exposure period	:	8 day
Unit	:	mg/L
Analytical monitoring	:	no
EC3	:	= .13
Method	:	other: determination of biological damage to green algae caused by water-polluting substances
Year	:	
GLP	:	no
Test substance	:	other TS
Remark	:	EC3 = toxic limiting concentration 3 %; no further data
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	neutralized
Test substance	:	monochloroacetic acid

(37)

Species	:	Scenedesmus subspicatus (Algae)
Endpoint	:	biomass
Exposure period	:	72 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no
NOEC	:	= .0058
EC10	:	= .006
EC50	:	= .025
Method	:	OECD Guideline 201 "Algae, Growth Inhibition Test"
Year	:	1992
GLP	:	yes
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	The indicated concentrations are nominal concentrations.
Source	:	Hoechst AG Frankfurt 80

Hoechst AG Frankfurt/Main
Test condition : pH: 7.7 - 8.1

(57)

Species : Scenedesmus subspicatus (Algae)
Endpoint : biomass
Exposure period : 72 hour(s)
Unit : mg/L
Analytical monitoring : no
NOEC : = .0058
EC10 : = .006
EC50 : = .025
Method : OECD Guideline 201 "Algae, Growth Inhibition Test"
Year : 1992
GLP : yes
Test substance : as prescribed by 1.1 - 1.4
Remark : The indicated concentrations are nominal concentrations.
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test condition : pH: 7.7 - 8.1
Reliability : (1) valid without restriction
Guideline study

(58)

Species : Scenedesmus subspicatus (Algae)
Endpoint : biomass
Exposure period : 48 hour(s)
Unit : mg/L
Analytical monitoring : no data
EC10 : = .007
EC50 : = .028
Method : other: Scenedesmus cell growth inhibition test, DIN 38412 Part 9, Determination of the Inhibiting Action of Substances Contained in Water on Green Algae, modified method
Year :
GLP : no data
Test substance : other TS
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test condition : pH: 8.1 - 9.6
Test substance : monochloroacetic acid

(59)

Species : Scenedesmus subspicatus (Algae)
Endpoint : biomass
Exposure period : 48 hour(s)
Unit : mg/L
Analytical monitoring : no data
EC10 : = .007
EC50 : = .028
Method : other: Scenedesmus cell growth inhibition test, DIN 38412 Part 9, Determination of the Inhibiting Action of Substances Contained in Water on Green Algae, modified method
Year :
GLP : no data
Test substance : other TS
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test condition : pH: 8.1 - 9.6
Test substance : monochloroacetic acid
Reliability : (1) valid without restriction
Study in accordance with national standard procedure/standard method.

(59)

Species	:	Scenedesmus subspicatus (Algae)
Endpoint	:	growth rate
Exposure period	:	72 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no
NOEC	:	= .0058
EC10	:	= .007
EC50	:	= .033
Method	:	OECD Guideline 201 "Algae, Growth Inhibition Test"
Year	:	1992
GLP	:	yes
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	The indicated concentrations are nominal concentrations.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	pH: 7.7 - 8.1

(57)

Species	:	Scenedesmus subspicatus (Algae)
Endpoint	:	growth rate
Exposure period	:	72 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no
NOEC	:	= .0058
EC10	:	= .007
EC50	:	= .033
Method	:	OECD Guideline 201 "Algae, Growth Inhibition Test"
Year	:	1992
GLP	:	yes
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	The indicated concentrations are nominal concentrations.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	pH-Wert: 7.7 - 8.1
Reliability	:	(1) valid without restriction Guideline study

(58)

Species	:	Scenedesmus subspicatus (Algae)
Endpoint	:	growth rate
Exposure period	:	48 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no data
EC10	:	= .014
EC50	:	= .07
Method	:	other: Scenedesmus cell growth inhibition test, DIN 38412 Part 9, Determination of the Inhibiting Action of Substances Contained in Water on Green Algae, modified method
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	pH: 8.1 - 9.6
Test substance	:	monochloroacetic acid

(59)

Species	:	Scenedesmus subspicatus (Algae)
Endpoint	:	growth rate
Exposure period	:	48 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no data
EC10	:	= .014
EC50	:	= .07
Method	:	other: Scenedesmus cell growth inhibition test, DIN 38412 Part 9, Determination of the Inhibiting Action of Substances Contained in Water on Green Algae, modified method
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	pH: 8.1 - 9.6
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Study in accordance with national standard procedure/standard method

(59)

Species	:	Selenastrum capricornutum (Algae)
Endpoint	:	growth rate
Exposure period	:	72 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no data
NOEC	:	< .005
LOEC	:	= .005
EC10	:	= .06
EC50	:	= 1.8
EC20	:	= .13
Method	:	other: ISO 8692
Year	:	1993
GLP	:	no data
Test substance	:	no data
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	pH: 7.42 - 7.5
Reliability	:	(1) valid without restriction Study in accordance with national standard procedure/standard method

(60)

4.4 TOXICITY TO MICROORGANISMS E.G. BACTERIA

Type	:	aquatic
Species	:	activated sludge
Exposure period	:	
Unit	:	mg/L
Analytical monitoring	:	
SG	:	= 750
Method	:	other: OECD Confirmatory Test
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	SG = toxicity limit ; pH not indicated
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(36)

Type	:	aquatic
Species	:	activated sludge
Exposure period	:	
Unit	:	mg/L
Analytical monitoring	:	no data
SG	:	= 750
Method	:	other: OECD Confirmatory Test
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	SG = toxicity limit; pH not indicated
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study according to standard laboratory procedures by recognized institute

(36)

Type	:	aquatic
Species	:	activated sludge of a predominantly domestic sewage
Exposure period	:	24 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no
EC0	:	= 80
EC50	:	= 160
Method	:	ETAD fermentation tube method "Determination of damage to effluent bacteria by the Fermentation Tube Method"
Year	:	1986
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	pH not indicated

(61)

Type	:	aquatic
Species	:	activated sludge of a predominantly domestic sewage
Exposure period	:	24 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no
EC0	:	= 80
EC50	:	= 160
Method	:	ETAD frmentation tube method "Determination of damage to effluent bacteria by the Fermentation Tube Method"
Year	:	1986
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	pH not indicated
Reliability	:	(3) invalid Inappropriate test system

(62)

Type	:	aquatic
Species	:	Pseudomonas putida (Bacteria)
Exposure period	:	18 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no
EC10	:	= 4630

Method	:	other: Determination of the biological action of substances contained in water on bacteria by the cell growth inhibition test
Year	:	
GLP	:	no
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	neutralized; temperature: 25 °C
Test substance	:	monochloroacetic acid

(37)

Type	:	aquatic
Species	:	Pseudomonas putida (Bacteria)
Exposure period	:	18 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no
EC10	:	= 4630
Method	:	other: Determination of the biological action of substances contained in water on bacteria by the cell growth inhibition test
Year	:	
GLP	:	no
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	neutralized; temperature: 25 °C
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Study in accordance with national standard procedure/standard method

(37)

Type	:	aquatic
Species	:	Pseudomonas putida (Bacteria)
Exposure period	:	3 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no data
SG	:	> 1000
Method	:	other: OECD Guideline 209 "Activated Sludge, Respiration Inhibition Test" but with Pseudomonas putida instead of activated sludge
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	SG = toxicity limit
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	pH not indicated
Test substance	:	monochloroacetic acid

(36)

Type	:	aquatic
Species	:	Pseudomonas putida (Bacteria)
Exposure period	:	3 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no data
SG	:	> 1000
Method	:	other: OECD Guideline 209 "Activated Sludge, Respiration InhibitionTest" but with Pseudomonas putida instead of activated sludge
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	SG = toxicity limit
Source	:	Hoechst AG Frankfurt/Main

Clariant GmbH Frankfurt am Main
Test condition : pH not indicated
Test substance : monochloroacetic acid
Reliability : (1) valid without restriction
Guideline study

(36)

Type : aquatic
Species : Pseudomonas putida (Bacteria)
Exposure period : 10 hour(s)
Unit :
Analytical monitoring : no data
Method : other: static culture
Year :
GLP : no data
Test substance : other TS
Remark : 20 mM (= 1.89 g/L) monochloroacetic acid caused irreversible growth inhibition of Pseudomonas putida PP3 (medium: succinate).
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(40)

Type : aquatic
Species : Pseudomonas putida (Bacteria)
Exposure period : 10 hour(s)
Unit :
Analytical monitoring : no data
Method : other: static culture
Year :
GLP : no data
Test substance : other TS
Remark : 20 mM (= 1.89 g/L) monochloroacetic acid caused irreversible growth inhibition of Pseudomonas putida PP3 (medium: succinate).
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid
Reliability : (2) valid with restrictions
Evaluation is comprehensible and acceptable

(40)

Type : aquatic
Species : Tetrahymena pyriformis (Protozoa)
Exposure period : 9 hour(s)
Unit : mg/L
Analytical monitoring : no data
IC50 : = 83
Method : other: bottle test
Year :
GLP : no data
Test substance : no data
Remark : IC50: 50 % growth inhibition compared to the control.
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Reliability : (2) valid with restrictions
Evaluation is comprehensible and acceptable

(63)

Type : aquatic

Species	:	Tetrahymena pyriformis (Protozoa)
Exposure period	:	36 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no data
IC50	:	= 16
Method	:	other: microplate technique
Year	:	
GLP	:	no data
Test substance	:	no data
Remark	:	IC50: 50 % growth concentration compared to the control.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(2) valid with restrictions Evaluation is comprehensible and acceptable

(63)

Type	:	aquatic
Species	:	Tetrahymena pyriformis (Protozoa)
Exposure period	:	9 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no data
IC50	:	= 106
Method	:	other: test for acute toxicity
Year	:	
GLP	:	no data
Test substance	:	no data
Remark	:	IC50: 626 mg/L (3 h) IC50: 510 mg/L (6 h) IC50: 50 % growth inhibition compared to the control
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(2) valid with restrictions Evaluation is comprehensible and acceptable

(64)

Type	:	aquatic
Species	:	other bacteria: methanogenic bacteria, adapted
Exposure period	:	24 hour(s)
Unit	:	mg/L
Analytical monitoring	:	no data
EC100	:	= 945
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	At a substance concentration of 94 mg/L, the lag phase lasted 1 week and at 376 mg/L it lasted 7 weeks; here, methane production after this time amounted to the tenfold of that of the control.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	Inoculum immobilized on activated carbon carriers
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Evaluation is comprehensible and acceptable

(43)

Type	:	aquatic
Species	:	other bacteria: methanogenic bacteria, adapted
Exposure period	:	24 hour(s)

Unit	:	mg/L
Analytical monitoring	:	no data
EC100	:	= 945
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	At a substance concentration of 94 mg/L, the lag phase lasted 1 week and at 376 mg/l it lasted 7 weeks; here, methane production after this time amounted to the tenfold of that of the control.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	Inoculum immobilized on active carbon carriers
Test substance	:	monochloroacetic acid

(43)

Type	:	aquatic
Species	:	
Exposure period	:	24 hour(s)
Unit	:	mg/L
Analytical monitoring	:	
IC50	:	= 480
Method	:	other: test for acute toxicity
Year	:	
GLP	:	
Test substance	:	
Remark	:	IC50: 50 % growth inhibition compared to the control. Test organism: L-929 murine fibroblasts (ECACC no85011425) The cell line was tested in comparison with Tetrahymena pyriformis and evaluated as an alternative.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(2) valid with restrictions Evaluation is comprehensible and acceptable

(64)

4.5.1 CHRONIC TOXICITY TO FISH

4.5.2 CHRONIC TOXICITY TO AQUATIC INVERTEBRATES

Species	:	Daphnia magna (Crustacea)
Endpoint	:	
Exposure period	:	21 day
Unit	:	mg/L
Analytical monitoring	:	no data
NOEC	:	= 32
Method	:	other: [German] Federal Office for the Envirionment (1984): "Preliminary Toxicity Test for Daphnia magna"
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Parameters studied: reproduction rate, mortality and the time of first appearance of offspring.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	pH not less than 7; deviation between the concentration measured at the

end of the test and the nominal concentration is less than 20 %

Test substance : monochloroacetic acid
Reliability : (1) valid without restriction
Study by national standard procedure/standard method

(56)

4.6.1 TOXICITY TO SOIL DWELLING ORGANISMS

4.6.2 TOXICITY TO TERRESTRIAL PLANTS

4.6.3 TOXICITY TO OTHER NON-MAMM. TERRESTRIAL SPECIES

4.7 BIOLOGICAL EFFECTS MONITORING

4.8 BIOTRANSFORMATION AND KINETICS

4.9 ADDITIONAL REMARKS

Remark : Microbial degradation of 1,1,2-trichlorethane by Pseudomonas putida gives rise to monochloroacetic acid as a metabolite.
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

(65)

5.1.1 ACUTE ORAL TOXICITY

Type	:	LD50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Value	:	= 90.4 mg/kg body weight [bw]
Method	:	other: internal guideline of Hoechst AG
Year	:	1979
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	female
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(66)

Type	:	LD50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Value	:	= 277.5 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(67)

Type	:	LD50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Value	:	= 90.4 mg/kg bw
Method	:	other: internal guideline of Hoechst AG
Year	:	1979
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	sex: female
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(1) valid without restriction Guideline similar study

(68)

Type	:	LD50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Value	:	= 277.5 mg/kg bw

Method : other: no data
Year :
GLP : no data
Test substance : other TS
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid
Reliability : (4) not assignable
Original report in Russian

(67)

Type : LD50
Species : rat
Strain :
Sex :
Number of animals :
Vehicle :
Value : = 55 mg/kg bw
Method : other: no data
Year : 1974
GLP : no data
Test substance : no data
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Reliability : (4) not assignable
Original report in Russian

(69)

Type : LD50
Species : mouse
Strain :
Sex :
Number of animals :
Vehicle :
Value : = 165 mg/kg bw
Method : other: no data
Year :
GLP : no data
Test substance : other TS
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(70)

Type : LD50
Species : mouse
Strain :
Sex :
Number of animals :
Vehicle :
Value : = 260 mg/kg bw
Method : other: no data
Year :
GLP : no data
Test substance : other TS
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(71)

Type : LD50
Species : mouse

Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Value	:	= 300 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	male
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(72)

Type	:	LD50
Species	:	mouse
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Value	:	= 165 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Guideline similar study with acceptable limitations

(70)

Type	:	LD50
Species	:	mouse
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Value	:	= 260 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Guideline similar study with acceptable limitations

(71)

Type	:	LD50
Species	:	mouse
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Value	:	= 300 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS

Remark	:	Sex: male
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(4) not assignable Abstract

(72)

5.1.2 ACUTE INHALATION TOXICITY

Type	:	LC0
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Exposure time	:	
Value	:	= .005 mg/L
Method	:	other: time saturation test
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Not lethal; no data about length of exposure
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	monochloroacetic acid

(69)

Type	:	LC0
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Exposure time	:	
Value	:	= .005 mg/L
Method	:	other: time saturation test
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Not lethal; no data about length of exposure
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	monochloroacetic acid
Reliability	:	(4) not assignable Original report in Russian

(69)

Type	:	LC50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Exposure time	:	
Value	:	= .18 mg/L
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS

Remark	:	No data about length of exposure
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test condition	:	monochloroacetic acid

(69)

Type	:	LC50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Exposure time	:	
Value	:	= .18 mg/L
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	No data about length of exposure
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test condition	:	monochloroacetic acid
Reliability	:	(4) not assignable Original report in Russian

(69)

Type	:	LC50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Exposure time	:	1 hour(s)
Value	:	> .25 mg/L
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	no data
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(4) not assignable Secondary literature

(73)

5.1.3 ACUTE DERMAL TOXICITY

Type	:	LD50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Value	:	= 305 mg/kg bw
Method	:	other: internal guideline of AG
Year	:	1979
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	female
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(74)

Type	:	LD50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Value	:	= 305 mg/kg bw
Method	:	other: internal guideline of Hoechst AG
Year	:	1979
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	Sex: female
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(1) valid without restriction Guideline similar study

(75)

Type	:	LD50
Species	:	rabbit
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Value	:	= 250 mg/kg bw
Method	:	other: internal guideline of Hoechst AG
Year	:	1979
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(76)

Type	:	LD50
Species	:	rabbit
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Value	:	= 250 mg/kg bw
Method	:	other: internal guideline of Hoechst AG
Year	:	1979
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(1) valid without restriction Guideline similar study

(77)

5.1.4 ACUTE TOXICITY, OTHER ROUTES

Type	:	LD50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	

Route of admin.	:	intraperitoneal [i.p.]
Exposure time	:	
Value	:	= 154 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(78)

Type	:	LD50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Route of admin.	:	i.p.
Exposure time	:	
Value	:	= 154 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(4) not assignable Original report in Russian

(78)

Type	:	LD50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Route of admin.	:	subcutaneous [s.c.]
Exposure time	:	
Value	:	= 5 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	male
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(79)

Type	:	LD50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Route of admin.	:	s.c.
Exposure time	:	
Value	:	= 97.4 mg/kg bw
Method	:	other: internal guideline of Hoechst AG
Year	:	1979

GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	female
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(80)

Type	:	LD50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Route of admin.	:	s.c.
Exposure time	:	
Value	:	= 108 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	male
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(81)

Type	:	LD50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Route of admin.	:	s.c.
Exposure time	:	
Value	:	= 5 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Sex: male
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(4) not assignable Abstract

(79)

Type	:	LD50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Route of admin.	:	s.c.
Exposure time	:	
Value	:	= 97.4 mg/kg bw
Method	:	other: internal guideline of Hoechst AG
Year	:	1979
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	Sex: female
Source	:	Hoechst AG Frankfurt/Main

		Clariant GmbH Frankfurt am Main
Reliability	:	(1) valid without restriction Guideline similar study

(82)

Type	:	LD50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Route of admin.	:	s.c.
Exposure time	:	
Value	:	= 108 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Sex: male
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Guideline similar study with acceptable limitations

(81)

Type	:	LD50
Species	:	mouse
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Route of admin.	:	s.c.
Exposure time	:	
Value	:	= 250 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(83)

Type	:	LD50
Species	:	mouse
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Route of admin.	:	s.c.
Exposure time	:	
Value	:	= 150 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	male
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(72)

Type	:	LD50
Species	:	mouse
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Route of admin.	:	s.c.
Exposure time	:	
Value	:	= 250 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Guideline similar study with acceptable limitations

(83)

Type	:	LD50
Species	:	mouse
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Route of admin.	:	s.c.
Exposure time	:	
Value	:	= 150 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Sex: male
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(4) not assignable Abstract

(72)

Type	:	LD50
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Route of admin.	:	i.v.
Exposure time	:	
Value	:	= 55 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(69)

Type	:	LD50
Species	:	rat

Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Route of admin.	:	i.v.
Exposure time	:	
Value	:	= 55 mg/kg bw
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(4) not assignable Original report in Russian

(69)

5.2.1 SKIN IRRITATION

Species	:	rabbit
Concentration	:	
Exposure	:	
Exposure time	:	
Number of animals	:	
PDII	:	
Result	:	
EC classification	:	
Method	:	other: patch test, occlusive
Year	:	1979
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	In the skin tolerance test according to the FDA guidelines (application of 500 mg of the substance in paste form to the intact or scarified skin) all animals died within the 24-hour exposure period.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(84)

Species	:	rabbit
Concentration	:	
Exposure	:	
Exposure time	:	
Number of animals	:	
PDII	:	
Result	:	corrosive
EC classification	:	corrosive (causes burns)
Method	:	other: patch test, occlusive
Year	:	1979
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	exposure period: 24 h; modified (100 mg/kg of body weight [Kgw] in 0.9% NaCl solution)
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(84)

Species	:	rabbit

Concentration	:	
Exposure	:	
Exposure time	:	
Number of animals	:	
PDII	:	
Result	:	irritating
EC classification	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	exposure time: 24 h; 10% solution, appreciable hyperemia and slight skin thickenning (edema)
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(85)

Species	:	rabbit
Concentration	:	
Exposure	:	
Exposure time	:	
Number of animals	:	
PDII	:	
Result	:	highly corrosive
EC classification	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Concentrated chloroacetic acid; concentration limit 0.05 %; no other data
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(69)

Species	:	rabbit
Concentration	:	
Exposure	:	
Exposure time	:	
Number of animals	:	
PDII	:	
Result	:	
EC classification	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Exposure of 3 % of the body surface to chloroacetic acid was lethal to the test animals (no detailed data).
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(86)

Species	:	rabbit
Concentration	:	
Exposure	:	
Exposure time	:	
Number of animals	:	

PDII	:	
Result	:	
EC classification	:	
Method	:	other: patch test, occlusive
Year	:	1979
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	In the skin tolerance test according to the FDA guidelines (application of 500 mg of the substance in paste form to the intact or scarified skin) all animals died within the 24-hour exposure period
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(2) valid with restrictions Study well documented, acceptable from a natural science standpoint and for evaluation (87)
Species	:	rabbit
Concentration	:	
Exposure	:	
Exposure time	:	
Number of animals	:	
PDII	:	
Result	:	corrosive
EC classification	:	corrosive (causes burns)
Method	:	other: patch test, occlusive
Year	:	1979
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	Exposure time: 24 h; modified (100 mg/kg Kgw. in 0.9 % NaCl solution)
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study well documented, acceptable from a natural science standpoint and for evaluation (87)
Species	:	rabbit
Concentration	:	
Exposure	:	
Exposure time	:	
Number of animals	:	
PDII	:	
Result	:	irritating
EC classification	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Exposure time: 24 h; 10 % solution, appreciable hyperemia and slight skin thickenning (edema)
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(4) not assignable secondary literature (85)
Species	:	rabbit

Concentration	:	
Exposure	:	
Exposure time	:	
Number of animals	:	
PDII	:	
Result	:	highly corrosive
EC classification	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Concentrated chloroacetic acid; concentration limit 0.05 %; no further data
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(4) not assignable Original report in Russian

(69)

Species	:	rabbit
Concentration	:	
Exposure	:	
Exposure time	:	
Number of animals	:	
PDII	:	
Result	:	
EC classification	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Exposure of 3 % of the body surface to chloroacetic acid was lethal to the test animals (no detailed data).
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(4) not assignable Abstract

(86)

5.2.2 EYE IRRITATION

Species	:	rabbit
Concentration	:	
Dose	:	
Exposure Time	:	
Comment	:	
Number of animals	:	
Result	:	highly corrosive
EC classification	:	
Method	:	other: FDA guidelines (Fed. Register 38, No.187 of 9-27-1973, p. 27019)
Year	:	1979
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	Exposure time: 24 h; 100 mg (made into a paste with 0.01 mL of 0.9% NaCl solution)
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(84)

Species	:	rabbit
Concentration	:	
Dose	:	
Exposure Time	:	
Comment	:	
Number of animals	:	
Result	:	highly corrosive
EC classification	:	
Method	:	other: FDA guideline (Fed. Register 38, No.187 of 9-27-1973, p. 27019)
Year	:	1979
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	Exposure time: 24 h; 100 mg (made into a paste with 0.01 mL of 0.9 % NaCl solution)
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(2) valid with restrictions Study well documented, acceptabe from a natural science standpoint and for evaluation

(87)

5.3 SENSITIZATION

Type	:	Open epicutaneous test
Species	:	rabbit
Number of animals	:	
Vehicle	:	
Result	:	not sensitizing
Classification	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(4) not assignable Original report in Russian

(69)

Type	:	Open epicutaneous test
Species	:	rabbit
Number of animals	:	
Vehicle	:	
Result	:	not sensitizing
Classification	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(69)

5.4 REPEATED DOSE TOXICITY

Species		
Sex	:	
Strain	:	
Route of admin.	:	inhalation
Exposure period	:	4 months
Frequency of treatment	:	duration/day/week not given
Post obs. period	:	
Doses	:	5.8, 20.8 mg/m^3
Control group	:	yes
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	75 animals
Result	:	In the high dose group, reduced body weight and oxygen consumption, decrease in rectal temperature, reduction of amount of chlorides in urine as well as hemoglobinemia and inflammatory changes in the respiratory tract were noted. The low concentration caused increased performance of the CNS, a decrease in oxygen requirements and rectal temperature, a decrease in the amount of chlorides in urine and only slight morphological changes in the respiratory organs compared to the control group.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(69)

Species	:	rat
Sex	:	no data
Strain	:	no data
Route of admin.	:	inhalation
Exposure period	:	4 months
Frequency of treatment	:	duration/day/week not given
Post obs. period	:	
Doses	:	5.8, 20.8 mg/m^3
Control group	:	yes
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	75 animals
Result	:	In the high dose group, reduced body weight and oxygen consumption, decrease in rectal temperature, reduction of amount of chlorides in urine as well as hemoglobinemia and inflammatory changes in the respiratory tract were noted. The low concentration caused increased performance of the CNS, decrease in oxygen requirements and rectal temperature, a decrease in the amount of chlorides in urine as well as only slight morphological changes in the respiratory organs compared to the control group
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(4) not assignable Original report in Russian

(69)

Species	:	rat
Sex	:	male
Strain	:	Wistar
Route of admin.	:	oral feed
Exposure period	:	208 days
Frequency of treatment	:	daily
Post obs. period	:	
Doses	:	0, 0.005, 0.01, 0.025, 0.05, 0.1 % (ca. 2.5, 5, 12.5, 25, 50 mg/kg Kgw./day)
Control group	:	yes, concurrent no treatment
NOAEL	:	ca. 25 mg/kg
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	6 animals/group
Result	:	No treatment-related clinical symptoms, no macroscopically or histopathologically detectable changes in the organs, in the highest dose group reduced body weight increase and reduced activity.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(88)

Species	:	rat
Sex	:	male
Strain	:	Wistar
Route of admin.	:	oral feed
Exposure period	:	90 days
Frequency of treatment	:	daily
Post obs. period	:	
Doses	:	0.1 % (ca. 100 mg/kg Kgw./day)
Control group	:	yes, concurrent no treatment
Method	:	other:no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	14 animals
Result	:	Reduced spontaneous activity in the loose cage [?] and questionable, slightly elevated liver glycogen content .
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(88)

Species	:	rat
Sex	:	male
Strain	:	Wistar
Route of admin.	:	oral feed
Exposure period	:	208 days
Frequency of treatment	:	daily
Post obs. period	:	
Doses	:	0, 0.005, 0.01, 0.025, 0.05, 0.1 % (ca. 2.5, 5, 12.5, 25, 50 mg/kgKgw./day)
Control group	:	yes, concurrent no treatment
NOAEL	:	ca. 25 mg/kg
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS

Remark	:	6 animals/group
Result	:	No treatment-related clinical symptoms, no macroscopically or histopathologically detectable changes in the organs, in the highest dose group reduced body weight increase and reduced activity.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study well documented, acceptable from a natural science standpoint and for evaluation

(88)

Species	:	rat
Sex	:	male
Strain	:	Wistar
Route of admin.	:	oral feed
Exposure period	:	90 days
Frequency of treatment	:	daily
Post obs. period	:	
Doses	:	0.1 % (ca. 100 mg/kg Kgw./day)
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	14 animals
Result	:	Reduced spontaneous activity in the cage and questionable, slightly elevated liver glycogen content
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study well documented, acceptable from a natural science standpoint and for evaluation

(88)

Species	:	rat
Sex	:	male
Strain	:	Sprague-Dawley
Route of admin.	:	drinking water
Exposure period	:	90 days
Frequency of treatment	:	daily
Post obs. period	:	not indicated
Doses	:	0, ca. 18.6 mg/kg of body weight (1.9 mM)
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	5 animals/group
Result	:	Slightly (4.8 %) reduced body weight increase and decrease in liver weight (10 %) as well as inflammatory changes in the liver and the lungs.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(89)

Species	:	rat
Sex	:	male
Strain	:	Sprague-Dawley

Route of admin.	:	drinking water
Exposure period	:	90 days
Frequency of treatment	:	daily
Post obs. period	:	not given
Doses	:	0, ca. 18.6 mg/kg of body weight (1.9 mM) [sic – Translator]
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	5 animals/group
Result	:	Slightly (4.8 %) reduced body weight increase and decrease in liver weight (10 %) as well as inflammatory changes in the liver and the lungs.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Guideline similar study with acceptable limitations

(89)

Species	:	rat
Sex	:	male/female
Strain	:	other: F344/N
Route of admin.	:	gavage
Exposure period	:	13 weeks
Frequency of treatment	:	5 times/week
Post obs. period	:	
Doses	:	0, 30, 60, 90, 120, 150 mg/kg of body weight/day
Control group	:	yes, concurrent no treatment
NOAEL	:	= 30 mg/kg
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	20 animals/sex/dose and control group Determination of hematological parameters in 3-5 animals/sex/dose and control group after 4-week and 8-week test duration
Result	:	At 90 mg/kg of body weight, 9/10 of the male and all female animals, and above 120 mg/kg of body weight all animals died. No effect on body weight growth of the surviving animals; dose-dependent increase in blood urea nitrogen, alanine aminotransferase and aspartate aminotransferase as well as elevated relative liver and kidney weights, clustered appearance of cardiomyopathies (in the authors' opinion as a result of inhibition of mitochondrial aconitase activity in the heart).
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(90) (91)

Species	:	rat
Sex	:	male/female
Strain	:	other: F344/N
Route of admin.	:	gavage
Exposure period	:	13 weeks
Frequency of treatment	:	5 times/week
Post obs. period	:	
Doses	:	0, 30, 60, 90, 120, 150 mg/kg of body weight/day
Control group	:	yes, concurrent no treatment

NOAEL	:	= 30 mg/kg
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	20 animals/sex/dose and control group. Determination of hematological parameters in 3 - 5 animals/sex/dose and control group after a 4-week and 8-week test duration.
Result	:	At 90 mg/kg of body weight, 9/10 of the male and all female animals, and above 120 mg/kg of body weight all animals died. No effect on body weight growth of the surviving animals; dose-dependent increase in blood urea nitrogen, alanine aminotransferase and aspartate aminotransferase as well as elevated relative liver and kidney weights, clustered appearance of cardiomyopathies (in the authors' opinion as a result of inhibition of mitochondrial aconitase activity in the heart).
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	mnochloroacetic acid
Reliability	:	(1) valid without restriction Guideline similar study

(90) (91)

Species	:	mouse
Sex	:	male/female
Strain	:	B6C3F1
Route of admin.	:	gavage
Exposure period	:	13 weeks
Frequency of treatment	:	5 times/week
Post obs. period	:	
Doses	:	0, 25, 50, 100, 150, 200 mg/kg of body weight/day
Control group	:	yes, concurrent no treatment
NOAEL	:	= 100 mg/kg
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	20 animals/sex/dose and control group. Determination of hematological parameters in 3-5 animals/sex/dose and control group after a 4-week and 8-week test duration
Result	:	In the highest-dose group, all male and 2/10 of the female animals died, and the surviving animals in the highest-dose female group showed reduced body weight growth and elevated absolute and relative liver weights whereas the animals of the highest-dose group that had died in the course of the test showed cytoplasmic vacuolation of the liver cells.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(90) (91)

Species	:	mouse
Sex	:	male
Strain	:	B6C3F1
Route of admin.	:	gavage
Exposure period	:	14 days
Frequency of treatment	:	5 times/week
Post obs. period	:	
Doses	:	0, 15, 30, 60, 120, 240 mg/kg of body weight/day
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	5 animals/sex/dose and control group.
Result	:	No substance-related macroscopically visible changes. In the high-dose group, the following toxicity symptoms were noted: hypoactivity, piloerection, ataxia and lacrimation. The mortality in the highest-dose group was 100%.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(91)

Species	:	mouse
Sex	:	female
Strain	:	B6C3F1
Route of admin.	:	gavage
Exposure period	:	14 days
Frequency of treatment	:	5 times/week
Post obs. period	:	
Doses	:	0, 30, 60, 120, 240, 480 mg/kg of body weight/day
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	5 animals/sex/dose and control group.
Result	:	No substance-related macroscopically visible changes. In the 240 mg/kg and 480 mg/kg of body weight dose group, the following toxicity symptoms were noted: hypoactivity, piloerection, ataxia and lacrimation. The mortality in the two highest-dose groups was 100 %.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochlorpacetic acid

(91)

Species	:	mouse
Sex	:	male/female
Strain	:	B6C3F1
Route of admin.	:	gavage
Exposure period	:	13 weeks
Frequency of treatment	:	5 times/week
Post obs. period	:	
Doses	:	0, 25, 50, 100, 150, 200 mg/kg of body weight/day
Control group	:	yes, concurrent no treatment
NOAEL	:	= 100 mg/kg

Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	20 animals/sex/dose and control group. Determination of hematological parameters in 3-5 animals/sex/dose and control group after a 4-week and 8-week test duration.
Result	:	In the highest-dose group, all male and 2/10 of the female animals died. The surviving animals in the highest-dose female group showed reduced body weight growth and elevated absolute and relative liver weights whereas the animals in the highest-dose group that had died in the course of the test showed cytoplasmic vacuolation of the liver cells.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Guideline similar study

(90) (91)

Species	:	mouse
Sex	:	male
Strain	:	B6C3F1
Route of admin.	:	gavage
Exposure period	:	14 days
Frequency of treatment	:	5 times/week
Post obs. period	:	
Doses	:	0, 15, 30, 60, 120, 240 mg/kg of body weight/day
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	5 animals/sex/dose and control group.
Result	:	No substance-related macroscopically visible changes. In the high-dose group, the following toxicity symptoms were noted: hypoactivity, piloerection, ataxia and lacrimation. The mortality in the highest-dose group was 100 %.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Guideline similar study

(91)

Species	:	mouse
Sex	:	female
Strain	:	B6C3F1
Route of admin.	:	gavage
Exposure period	:	14 days
Frequency of treatment	:	5 times/week
Post obs. period	:	
Doses	:	0, 30, 60, 120, 240, 480 mg/kg of body weight/day
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	5 animals/sex/dose and control group

Result	:	No substance-related macroscopically visible changes. In the 240 mg/kg and 480 mg/kg of body weight dose group, the following toxicity symptoms were noted: hypoactivity, piloerection, ataxy and lacrimation. The mortality in the two highest-dose groups was 100 %.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Guideline similar study

(91)

Species	:	guinea pig
Sex	:	
Strain	:	
Route of admin.	:	inhalation
Exposure period	:	4 months
Frequency of treatment	:	duration/day/week not given
Post obs. period	:	
Doses	:	5.8, 20.8 mg/m^3
Control group	:	yes
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	18 animals
Result	:	In the high dose group, reduced body weight and oxygen consumption, decrease in rectal temperature, reduced amount of chlorides in urine as well as hemoglobinemia and inflammatory changes in the respiratory tract were noted. The low concentration caused increased performance of the CNS, a decrease in oxygen requirements and rectal temperature, a decrease of the amount of chlorides in urine and only slight morphological changes in the respiratory organs compared to the control group..
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochlorocetic acid

(69)

Species	:	guinea pig
Sex	:	no data
Strain	:	no data
Route of admin.	:	inhalation
Exposure period	:	4 months
Frequency of treatment	:	duration/day/week not given
Post obs. period	:	
Doses	:	5.8, 20.8 mg/m^3
Control group	:	yes
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	18 animals
Result	:	In the high dose group, reduced body weight and oxygen consumption, decrease in rectal temperature, reduction of amount of chlorides in urine as well as hemoglobinemia and inflammatory changes in the respiratory tract were noted. The low concentration caused increased performance of the CNS, a decrease in oxygen requirements and rectal temperature, a decrease in the amount of chlorides in urine and only slight morphological changes in the respiratory organs compared to the control group.

Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(4) not assignable Original report in Russian

(69)

5.5 GENETIC TOXICITY 'IN VITRO'

Type	:	Ames test
System of testing	:	Salmonella typhimurium TA 98, TA 100, TA 1535, TA 1537
Concentration	:	0.8 - 1000 µg/plate
Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: internal guideline of Hoechst AG
Year	:	1979
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	4 plates/concentration; cytotoxic range covered
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main

(92)

Type	:	Ames test
System of testing	:	Salmonella typhimurium TA 98, TA 100, TA 1535, TA 1537
Concentration	:	0.8 - 1000 µg/plate
Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: internal guideline of Hoechst AG
Year	:	1979
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Remark	:	4 plates//concentration, cytotoxic range covered
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(1) valid without restriction Guideline similar study

(93)

Type	:	Ames test
System of testing	:	Salmonella typhimurium TA 1530
Concentration	:	up to 10206 µg/plate
Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	2 - 3 plates/concentration; above 1021 µg/plate cytotoxic; metabolic activation; phenobarbital-induced mouse liver [?]
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study well documented, acceptable from a natural science standpoint and for evaluation .

(94) (95) (96)

Type	:	Ames test
System of testing	:	Salmonella typhimurium TA 97, TA 98, TA 100, TA 1535, TA 1537
Concentration	:	10 - 3333 µg/plate
Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	cytotoxic range covered
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study well documented, acceptable from natural science standpoint and for evaluation

(97)

Type	:	Ames test
System of testing	:	Salmonella typhimurium TA 98, TA 100, TA 1535, TA 1537
Concentration	:	up to 1000 µg/plate
Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	no data concerning cytotoxicity
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study well documented, acceptable from natural science standpoint and for evaluation

(98)

Type	:	Ames test
System of testing	:	Salmonella typhimurium TA 98, TA 100, TA 1535, TA 1537
Concentration	:	no data
Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	No other data
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Guideline similar study

(91)

Type	:	Ames test
System of testing	:	Salmonella typhimurium TA 1535

Concentration	:	0.1 - 500 mM
Cycotoxic conc.	:	
Metabolic activation	:	without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	3 plates/concentration, cytotoxic range covered
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study well documented, acceptable from natural science standpoint and for evaluation

(99)

Type	:	Ames test
System of testing	:	Salmonella typhimurium TA 1530
Concentration	:	up to 10206 µg/plate
Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	2 - 3 plates/concentration; above 1021 µg/plate cytotoxic; metabolic activation: phenobarbital-induced mouse liver
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(94) (95) (96)

Type	:	Ames test
System of testing	:	Salmonella typhimurium TA 97, TA 98, TA 100, TA 1535, TA 1537
Concentration	:	10 - 3333 µg/plate
Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	cytotoxic range covered
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(97)

Type	:	Ames test
System of testing	:	Salmonella typhimurium TA 98, TA 100, TA 1535, TA 1537
Concentration	:	up to 1000 µg/plate
Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	no data concerning cytotoxicity
Source	:	Hoechst AG Frankfurt 80

Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(98)

Type : Ames test
System of testing : Salmonella typhimurium TA 98, TA 100, TA 1535, TA 1537
Concentration :
Cycotoxic conc. :
Metabolic activation : with and without
Result : negative
Method : other: no data
Year :
GLP : no data
Test substance : other TS
Remark : no other data
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(91)

Type : Ames test
System of testing : Salmonella typhimurium TA 1535
Concentration : 0.1 - 500 mM
Cycotoxic conc. :
Metabolic activation : without
Result : negative
Method : other: no data
Year :
GLP : no data
Test substance : other TS
Remark : 3 plates/concentration; cytotoxic range covered
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(99)

Type : Escherichia coli reverse mutation assay
System of testing : Escherichia coli WP2 and WP100
Concentration :
Cycotoxic conc. :
Metabolic activation : with and without
Result : negative
Method : other: no data
Year :
GLP : no data
Test substance : other TS
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(100)

Type : HGPRT assay
System of testing : V79 cells
Concentration : up to 198.45 µg/mL
Cycotoxic conc. :
Metabolic activation : without
Result : negative
Method : other: no data
Year :
GLP : no data
Test substance : other TS
Remark : no data concerning cytotoxicity

Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study well documented, acceptable from natural science standpoint and for evaluation (101) (102)
Type	:	HGPRT assay
System of testing	:	V79 cells
Concentration	:	up to 198.45 µg/mL
Cycotoxic conc.	:	
Metabolic activation	:	without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	no data concerning cytotoxicity
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid (101) (102)
Type	:	mouse lymphoma assay
System of testing	:	mouse lymphoma cells (L5178Y Tk +/-)
Concentration	:	139.4 - 1048.2 µg/mL
Cycotoxic conc.	:	
Metabolic activation	:	with
Result	:	positive
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	positive in cytotoxic range above about 590 µg/mL; negative at noncytotoxic concentrations
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study well documented, acceptable from natural science standpoint and for evaluation (103)
Type	:	Mouse lymphoma assay
System of testing	:	Mouse lymphoma cells (L5178Y Tk +/-)
Concentration	:	50 - 800 µg/mL
Cycotoxic conc.	:	
Metabolic activation	:	without
Result	:	positive
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Positive in cytotoxic range above 400 µg/mL; 3 independent tests carried out
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Guideline similar study (104)

Type	:	Mouse lymphoma assay
System of testing	:	Mouse lymphoma cells (L5178Y Tk +/-)
Concentration	:	no data
Cycotoxic conc.	:	
Metabolic activation	:	without
Result	:	positive
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	no other data
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Guideline similar study

(91)

Type	:	mouse lymphoma assay
System of testing	:	mouse lymphoma cells (L5178Y Tk +/-)
Concentration	:	139.4 - 1048.2 µg/mL
Cycotoxic conc.	:	
Metabolic activation	:	with
Result	:	positive
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Positive in cytotoxic range above about 590 µg/mL; negative at low concentrations
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(103)

Type	:	mouse lymphoma assay
System of testing	:	mouse lymphoma cells (L5178Y Tk +/-)
Concentration	:	50 - 800 µg/mL
Cycotoxic conc.	:	
Metabolic activation	:	without
Result	:	positive
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	positive in cytotoxic range above 400 µg/mL; 3 independent tests were carried out
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(104)

Type	:	mouse lymphoma assay
System of testing	:	mouse lymphoma cells (L5178Y Tk +/-)
Concentration	:	
Cycotoxic conc.	:	
Metabolic activation	:	without
Result	:	positive
Method	:	other: no data
Year	:	
GLP	:	no data

Test substance	:	other TS
Remark	:	no further data
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(91)

Type	:	Sister chromatid exchange assay
System of testing	:	Ovary cells of Chinese hamster (CHO-W-B1)
Concentration	:	50 - 500 µg/mL
Cycotoxic conc.	:	
Metabolic activation	:	without
Result	:	positive
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	positive above 160 µg/mL
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Guideline similar study

(105) (91)

Type	:	Sister chromatid exchange assay
System of testing	:	Ovary cells of Chinese hamster (CHO-W-BI)
Concentration	:	50 - 1600 µg/mL
Cycotoxic conc.	:	
Metabolic activation	:	with
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Guideline similar study

(105) (91)

Type	:	Sister chromatid exchange assay
System of testing	:	CHL (hamster lung fibroblasts)
Concentration	:	0.06 - 0.25 mg/mL
Cycotoxic conc.	:	
Metabolic activation	:	without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study well documented, acceptable from natural science standpoint and for evaluation

(106)

Type	:	Sister chromatid exchange assay
System of testing	:	Ovary cells of Chinese hamster (CHO-W-B1)

Concentration	:	50 - 500 µg/mL
Cycotoxic conc.	:	
Metabolic activation	:	without
Result	:	positive
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Positive above 160 µg/mL
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(105) (91)

Type	:	Sister chromatid exchange assay
System of testing	:	Ovary cells of Chinese hamster (CHO-W-BI)
Concentration	:	50 - 1600 µg/mL
Cycotoxic conc.	:	
Metabolic activation	:	with
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(105) (91)

Type	:	Sister chromatid exchange assay
System of testing	:	CHL (hamster lung fibroblasts)
Concentration	:	0.06 - 0.25 mg/mL
Cycotoxic conc.	:	
Metabolic activation	:	without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(106)

Type	:	other: "umu-test" (gene mutation)
System of testing	:	Salmonella typhimurium TA 1535/pSK 1002
Concentration	:	no data
Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Concentrations of up to 330 µg/mL; no data about cytotoxicity
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study well documented, acceptable from natural science standpoint and for evaluation

(107)

Type	:	other: "umu-test" (gene mutation)
System of testing	:	Salmonella typhimurium TA 1535/pSK 1002
Concentration	:	
Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Concentrations of up to 330 µg/mL; no data about cytotoxicity
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(107)

Type	:	other: chromosome damage
System of testing	:	Ovary cells of the Chinese hamster (CHO)
Concentration	:	
Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	No further data
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(105) (91)

Type	:	other: chromosome damage
System of testing	:	CHL (hamster lung fibroblasts)
Concentration	:	
Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(106)

Type	:	other: chromosome damage
System of testing	:	Ovary cells of Chinese hamster (CHO)
Concentration	:	no data
Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	no further data
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main

Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Guideline similar study (105) (91)
Type	:	other: chromosome damage
System of testing	:	CHL (hamster lung fibroblasts)
Concentration	:	no data
Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study well documented, acceptable from natural science standpoint and for evaluation (106)
Type	:	other: inhibition of DNA synthesis
System of testing	:	bone marrow cells (rat)
Concentration	:	1.5 - 151.2 µg/mL
Cycotoxic conc.	:	
Metabolic activation	:	
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study well documented, acceptable from natural science standpoint and for evaluation (108)
Type	:	other: inhibition of DNA synthesis
System of testing	:	bone marrow cells (rat)
Concentration	:	1.5 - 151.2 µg/mL
Cycotoxic conc.	:	
Metabolic activation	:	
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid (108)
Type	:	other: Rec-Assay
System of testing	:	Escherichia coli WP2 and WP100
Concentration	:	no data

Cycotoxic conc.	:	
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study well documented, acceptable from natural science standpoint and for evaluation

(100)

Type	:	other: SOS chromotest
System of testing	:	Escherichia coli
Concentration	:	no data
Cycotoxic conc.	:	
Metabolic activation	:	without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	no further data
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Study well documented, acceptable from natural science standpoint and for evaluation

(109)

Type	:	other: SOS chromotest
System of testing	:	Escherichia coli
Concentration	:	
Cycotoxic conc.	:	
Metabolic activation	:	without
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	no further data
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(109)

Type	:	other: screening test
System of testing	:	mouse embryo fibroblasts (after stimulation with Newcastle disease virus)
Concentration	:	no data
Cycotoxic conc.	:	
Metabolic activation	:	
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	inhibition of interferon induction Effect: no carcinogenic potential

Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(4) not assignable secondary literature

(110)

Type	:	other: screening test
System of testing	:	mouse embryo fibroblasts (after stimulation with Newcastle disease virus)
Concentration	:	no data
Cycotoxic conc.	:	
Metabolic activation	:	
Result	:	negative
Method	:	other: no data
Year	:	1980
GLP	:	no data
Test substance	:	no data
Remark	:	inhibition of interferon induction
Result	:	no carcinogenic potential
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(4) not assignable secondary literature

(111)

Type	:	other: screening test
System of testing	:	mouse embryo fibroblasts (after stimulation with Newcastle disease virus)
Concentration	:	
Cycotoxic conc.	:	
Metabolic activation	:	
Result	:	negative
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	inhibition of interferon induction effect: no carcinogenic potential
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(110)

5.6 GENETIC TOXICITY 'IN VIVO'

Type	:	cytogenetic assay
Species	:	mouse
Sex	:	male/female
Strain	:	Swiss
Route of admin.	:	i.p.
Exposure period	:	
Doses	:	12.5, 25, 50 mg/kg of body weight or 5 times 10 mg/kg of body weight
Result	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	evaluation: 300 metaphases/dose; control: 1000 metaphases
Result	:	positive
Source	:	Hoechst AG Frankfurt/Main

Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid
Reliability : (3) invalid
Considerably flawed method

(112)

Type : cytogenetic assay
Species : mouse
Sex : male/female
Strain : Swiss
Route of admin. : oral unspecified
Exposure period :
Doses : 50 mg/kg of body weight
Result :
Method : other: no data
Year :
GLP : no data
Test substance : other TS
Remark : evaluation: 300 metaphases/dose; control: 600 metaphases
Result : negative
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid
Reliability : (3) invalid
Considerably flawed method

(112)

Type : cytogenetic assay
Species : mouse
Sex : male/female
Strain : Swiss
Route of admin. : s.c.
Exposure period :
Doses : 50 mg/kg of body weight.
Result :
Method : other: no data
Year :
GLP : no data
Test substance : other TS
Remark : evaluation: 300 metaphases/dose; control: 600 metaphases
Result : negative
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid
Reliability : (3) invalid
method markedly flawed

(112)

Type : cytogenetic assay
Species : mouse
Sex : male/female
Strain : Swiss
Route of admin. : i.p.
Exposure period :
Doses : 12.5, 25, 50 mg/kg of body weight or 5 times 10 mg/kg of body weight
Result :
Method : other: no data
Year :
GLP : no data
Test substance : other TS
Remark : evaluation: 300 metaphases/dose; control: 1000 metaphases

Result	:	positive
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(112)

Type	:	cytogenetic assay
Species	:	mouse
Sex	:	male/female
Strain	:	Swiss
Route of admin.	:	oral unspecified
Exposure period	:	
Doses	:	50 mg/kg of body weight
Result	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	evaluation: 300 metaphases/dose; control: 600 metaphases
Result	:	negative
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(112)

Type	:	cytogenetic assay
Species	:	mouse
Sex	:	male/female
Strain	:	Swiss
Route of admin.	:	s.c.
Exposure period	:	
Doses	:	50 mg/kg of body weight
Result	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	evaluation: 300 metaphases/dose; control: 600 metaphases
Result	:	negative
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(113)

Type	:	Drosophila SLRL test
Species	:	Drosophila melanogaster
Sex	:	male
Strain	:	
Route of admin.	:	oral feed
Exposure period	:	
Doses	:	400 ppm
Result	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	no further data
Result	:	negative
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid

Reliability	:	(1) valid without restriction Guideline similar study

(91)

Type	:	Drosophila SLRL test
Species	:	Drosophila melanogaster
Sex	:	male
Strain	:	
Route of admin.	:	other: injection
Exposure period	:	
Doses	:	900 ppm
Result	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	route of administration: injection; no further data
Result	:	questionable
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Guideline similar study

(91)

Type	:	Drosophila SLRL test
Species	:	Drosophila melanogaster
Sex	:	male
Strain	:	
Route of admin.	:	oral feed
Exposure period	:	
Doses	:	400 ppm
Result	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	no further data
Result	:	negative
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(91)

Type	:	Drosophila SLRL test
Species	:	Drosophila melanogaster
Sex	:	male
Strain	:	
Route of admin.	:	other: injection
Exposure period	:	
Doses	:	900 ppm
Result	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	route of administration: injection; no further data
Result	:	questionable
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(91)

Type	:	other: mouse sperm abnormality test
Species	:	mouse
Sex	:	male
Strain	:	Swiss
Route of admin.	:	i.p.
Exposure period	:	
Doses	:	12.5, 25, 50 mg/kg of body weight
Result	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	3 animals/dose; evaluation: 1500 sperms/dose; control:: 3000 sperms
Result	:	positive (above 25 mg/kg of body weight)
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(3) invalid Method markedly flawed

(112)

Type	:	other: mouse sperm abnormality test
Species	:	mouse
Sex	:	male
Strain	:	Swiss
Route of admin.	:	i.p.
Exposure period	:	
Doses	:	12.5, 25, 50 mg/kg of body weight
Result	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	3 animals/dose; evaluation: 1500 sperms/dose; control: 3000 sperms
Result	:	positive (above 25 mg/kg of body weight)
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(112)

5.7 CARCINOGENICITY

Species	:	mouse
Sex	:	female
Strain	:	other: ICR/Ha Swiss
Route of admin.	:	dermal
Exposure period	:	580 days
Frequency of treatment	:	3 times/week
Post. obs. period	:	
Doses	:	2 mg in 0.1 mL of acetone
Result	:	
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS

Remark	:	50 animals; skin painting study
Result	:	No elevated tumor incidence at the application site compared to the controls, but the mean survival time was reduced (506 days; untreated controls: 526 days, controls treated with acetone: 543 days)
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(114)

Species	:	mouse
Sex	:	female
Strain	:	other: ICR/Ha Swiss
Route of admin.	:	dermal
Exposure period	:	580 days
Frequency of treatment	:	3 times/week
Post. obs. period	:	
Doses	:	2 mg in 0.1 mL of acetone
Result	:	
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	50 animals; skin painting study
Result	:	No elevated tumor incidence at the application site compared to the controls, but the mean survival time was reduced (506 days; untreated controls: 526 days, controls treated with acetone: 543 days)
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(3) invalid inappropriate test system

(114)

Species	:	rat
Sex	:	male
Strain	:	Fischer 344
Route of admin.	:	drinking water
Exposure period	:	100 - 104 weeks
Frequency of treatment	:	daily
Post. obs. period	:	
Doses	:	0, 50, 500, 2000 mg/L (0, 3.6, 28, 69 mg/kg of body weight/day)
Result	:	
Control group	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Result	:	Dose-dependent reduction of body weight growth and elevated mortality in the highest-dose group, no substance-related histopathological findings and no indications of a carcinogenic effect.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(115)

Species	:	rat

Sex	:	male
Strain	:	Fischer 344
Route of admin.	:	drinking water
Exposure period	:	100 - 104 weeks
Frequency of treatment	:	daily
Post. obs. period	:	
Doses	:	0, 50, 500, 2000 mg/L (0, 3.6, 28, 69 mg/kg of body weight/day)
Result	:	
Control group	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Result	:	Dose-dependent reduction of body weight growth and elevated mortality in the highest-dose group, no substance-related histopathological findings and no indications of a carcinogenic effect
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(4) not assignable Abstract

(115)

Species	:	rat
Sex	:	male/female
Strain	:	other: F344/N
Route of admin.	:	gavage
Exposure period	:	104 weeks
Frequency of treatment	:	daily, 5 times/week
Post. obs. period	:	
Doses	:	0, 15, 30 mg/kg of body weight
Result	:	
Control group	:	yes, concurrent no treatment
Method	:	other: carcinogenicity
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	70 animals/sex/dose and control group. Test substance preparation in deionized water. Interim section of 10 animals/sex/dose and control group after a 6-month test period and of 7 animals/sex/dose and control group after a 15-month test period.
Result	:	No elevated tumor incidence compared to the controls. The average body weight of the females in the low-dose and high-dose groups and of the males in the low-dose group did not deviate from those of the controls by more than 10 % during the test. For the males in the high-dose group, the average body weight after the 30th week was 4 to 8% lower. The mortality of the males in the high-dose group (controls: 26/53, high dose: 37/53) and of the males in the low and high-dose groups (controls: 16/53, low dose: 34/53 and high dose: 27/53) was significantly elevated.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(91)

Species	:	rat

Sex	:	male/female
Strain	:	other: F344/N
Route of admin.	:	gavage
Exposure period	:	104 weeks
Frequency of treatment	:	daily, 5 times/week
Post. obs. period	:	
Doses	:	0, 15, 30 mg/kg of body weight
Result	:	
Control group	:	yes, concurrent no treatment
Method	:	other: carcinogenicity
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	70 animals/sex/dose and control group. Test substance preparation in deionized water. Interim section of 10 animals/sex/dose and control group after a 6-month test period and of 7 animals/sex/dose and control group after a 15-month test period .
Result	:	No elevated tumor incidence compared to the controls. The average body weight of the females in the low-dose and high-dose groups and of the males in the low-dose group did not deviate from those of the controls by more than 10 % during the test. For the males in the high-dose group, the average body weight after the 30th week was 4 to 8% lower. The mortality of the males in the high-dose group (controls: 26/53, high dose: 37/53) and of the males in the low and high-dose groups (controls: 16/53, low dose: 34/53 and high dose: 27/53) was significantly elevated
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Guideline similar study

(91)

Species	:	mouse
Sex	:	male/female
Strain	:	other: B6C3F1, B6AKF1
Route of admin.	:	gavage
Exposure period	:	18 months
Frequency of treatment	:	daily; from 7th to 28th day of life by stomach tube then in the feed.
Post. obs. period	:	
Doses	:	46.4 mg/kg of body weight/day by stomach tube; 149 ppm in the feed (see text)
Result	:	
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	18 animals/sex/strain
Result	:	The kinds and incidence of tumors were the same as in the control group.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(116)

Species	:	mouse

Sex	:	male/female
Strain	:	B6C3F1
Route of admin.	:	gavage
Exposure period	:	104 weeks
Frequency of treatment	:	daily, 5 times/week
Post. obs. period	:	
Doses	:	0, 50, 100 mg/kg of body weight
Result	:	
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	60 animals/sex/dose and control group. Test substance preparation in deionized water
Result	:	No elevated tumor incidence compared to the controls. The average body weight of the males was the same as that of the controls. After week 52 of the test period, the body weight growth of the females in the low-dose and high-dose groups was inhibited by 6 to 10 % compared to the controls. The animals treated with the substance showed an elevated incidence of inflammations of the mucous membrane of the nasal passage, respiratory epithelial metaplasia of the olfactory epithelium and squamous cell hyperplasia in the forestomach. The mortality of the males in the high-dose group was significantly elevated (controls: 14/60, high dose group: 39/60).
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochlorocetic acid

(91)

Species	:	mouse
Sex	:	male/female
Strain	:	other: B6C3F1, B6AKF1
Route of admin.	:	gavage
Exposure period	:	18 months
Frequency of treatment	:	daily; from day 7 to day 28 of life by stomach tube then in the feed
Post. obs. period	:	
Doses	:	46.4 mg/kg of body weight/day by stomach tube; 149 ppm in the feed (see text)
Result	:	
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	18 animals/sex/variety
Result	:	The kind and incidence of tumors were the same as in the control group.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(3) invalid Documentation insufficient for evaluation

(116)

Species	:	mouse
Sex	:	male/female
Strain	:	B6C3F1

Route of admin.	:	gavage
Exposure period	:	104 weeks
Frequency of treatment	:	daily, 5 times/week
Post. obs. period	:	
Doses	:	0, 50, 100 mg/kg of body weight
Result	:	
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	60 animals/sex/dose and control group. Test substance preparation in deionized water
Result	:	No elevated tumor incidence compared to the controls. The average body weight of the males was the same as that of the controls. After week 52 of the test period, the body weight growth of the females in the low-dose and high-dose groups was inhibited by 6 to 10 % compared to the controls. The animals treated with the substance showed an elevated incidence of inflammations of the mucous membrane of the nasal passage, respiratory epithelial metaplasia of the olfactory epithelium and squamous cell hyperplasia in the forestomach. The mortality of the males in the high-dose group was significantly elevated (controls: 14/60, high dose group: 39/60).
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(1) valid without restriction Guideline similar study

(91)

Species	:	mouse
Sex	:	female
Strain	:	other: ICR/Ha Swiss
Route of admin.	:	s.c.
Exposure period	:	580 days
Frequency of treatment	:	once/week
Post. obs. period	:	
Doses	:	0.5 mg in 0.05 mL of tricaprylin
Result	:	
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	50 animals
Result	:	Three sarcomas detected in the area of the application site do not represent a significant increase in tumor incidence compared to the controls. The mean survival time of the dose group was reduced compared to the controls (454 days; controls: untreated 526 days, animals treated with tricaprylin: 495 days).
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(114)

Species	:	mouse
Sex	:	male/female
Strain	:	other: B6C3F1, B6AKF1

Route of admin.	:	s.c.
Exposure period	:	18 months
Frequency of treatment	:	once at the age of 28 days
Post. obs. period	:	
Doses	:	100 mg/kg of body weight in water
Result	:	
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	18 animals/sex/strain
Result	:	The kind and incidence of the tumors were in the same range as in the control group
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(117)

Species	:	mouse
Sex	:	female
Strain	:	other: ICR/Ha Swiss
Route of admin.	:	s.c.
Exposure period	:	580 days
Frequency of treatment	:	once/week
Post. obs. period	:	
Doses	:	0.5 mg in 0.05 mL of tricaprylin
Result	:	
Control group	:	yes, concurrent no treatment
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	50 animals
Result	:	Three sarcomas detected in the area of the application site do not represent a significant increase in tumor incidence compared to the controls. The mean survival time of the dose group was reduced compared to the controls (454 days; controls: untreated 526 days, animals treated with tricaprylin: 495 days).
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(3) invalid Inappropriate test system

(114)

Species	:	mouse
Sex	:	male/female
Strain	:	other: B6C3F1, B6AKF1
Route of admin.	:	s.c.
Exposure period	:	18 months
Frequency of treatment	:	once at the age of 28 days
Post. obs. period	:	
Doses	:	100 mg/kg of body weight in water
Result	:	
Control group	:	yes, concurrent no treatment

Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	18 animals/sex/strain
Result	:	The kind and incidence of the tumors were in the same range as in the control group
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(3) invalid Inappropriate test system

(117)

5.8 TOXICITY TO REPRODUCTION

Type	:	other: fertility
Species	:	rat
Sex	:	male/female
Strain	:	Fischer 344
Route of admin.	:	gavage
Exposure period	:	13 weeks
Frequency of treatment	:	5 days/week
Premating exposure period		
Male	:	
Female	:	
Duration of test	:	
Doses	:	30, 60, 90, 120 or 150 mg/kg of body weight/day
Control group	:	yes
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	no data
Result	:	No substance-related histopathologically detectable effects on the testes and no change in absolute and relative weights of the testes.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Reliability	:	(2) valid with restrictions Study well documented, acceptable from a natural science standpoint and for evaluation.

(118)

Type	:	
Species	:	rat
Sex	:	female
Strain	:	Long-Evans
Route of admin.	:	other: p.o.
Exposure period	:	6th – 15th day of gestation
Frequency of treatment	:	daily
Premating exposure period		
Male	:	
Female	:	
Duration of test	:	
Doses	:	0, 17, 35, 70, 140 mg/kg of body weight/day
Control group	:	

Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Result	:	At the highest dose level, maternal toxicity (reduced body weight growth), no fetotoxicity, in the highest dose group elevated number of malformations of the cardiovascular system; skeletal malformations did not occur.
Source	:	Hoechst AG Frankfurt 80 Hoechst AG Frankfurt/Main
Test substance	:	monochloroacetic acid

(119)

5.9 DEVELOPMENTAL TOXICITY/TERATOGENICITY

Species	:	rat
Sex	:	female
Strain	:	Long-Evans
Route of admin.	:	other: p.o
Exposure period	:	6th –15th day of gestation
Frequency of treatment	:	daily
Duration of test	:	
Doses	:	0, 17, 35, 70, 140 mg/kg of body weight/day
Control group	:	
Method	:	other: no data
Year	:	
GLP	:	no data
Test substance	:	other TS
Result	:	At the highest dose level, maternal toxicity (reduced body weight growth), no fetotoxicity, in the highest dose group elevated number of malformations of the cardiovascular system; skeletal malformations did not occur.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloriacetic acid
Reliability	:	(4) not assignable Abstract

(119)

5.10 OTHER RELEVANT INFORMATION

Type	:	neurotoxicity
Remark	:	species: mouse strain Swiss-Webster sex: male Rt. of admin.: oral (not specified) Adm. duration: no data Adm. interval: no data Dose: 260 (LD 50), 380 mg/kg of body weight (LD80) Controls: no data Method: no data GLP: no data Result: The surviving animals showed after 24 h symptoms such as rigidly pressing together the forelegs and spreading the hindlegs, occasionally also pressing together the hindlegs, bent back and severe convulsions followed by death within 48 hours p.a. Animals surviving up to 6 months showed no improvement in symptoms. Histologically, damage to Purkinje

cells occurred primarily in the cerebellum but also in the brain stem, hippocampus and cortex (2 to 5 weeks p.a.). The blood-brain barrier also showed damage.

Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

Test substance : monochloroacetic acid

(71)

Type : Neurotoxicity

Remark : Dichloroacetic acid and phenobarbital were tested in rodents as potential antidotes in monochloroacetic acid (MCA) poisoning. Administration to rats (Sprague-Dawley, males) of dichloroacetic acid (DCA; 110 mg/kg of body weight, i.p.) 15 minutes after administration of MCA (80 mg/kg of body weight, i.v.) reduced the mortality to 0. Administration of phenobarbital (PhB; 40 mg/kg of body weight, i.p.) reduced mortality to < 15 %. A similar effect was seen in mice (Swiss-Webster, males). In the authors' opinion, the lethal effect of MCA on rats is not associated with an altered permeability of the blood-brain barrier, because PhB did not change the concentration of MCA and of metabolites in plasma and in the cerebrospinal fluid (CSF) of rats that had been treated with a lethal dose of ^{14}C-MCA. Rather, the lethal effect is associated with a dose-dependent accumulation of lactate in the CSF which occurs in parallel with the ataxia and for which a threshold value for the mortality (18 mmol/l) has been noted. By use of DCA and PhB, the lactate level in the CSF and thus also the mortality were reduced.

Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

Test substance : monochloroacetic acid

(120)

Type : Neurotoxicity

Remark :

Species:	mouse
Strain:	Swiss-Webster
Sex:	males
Rt. of adm.:	oral (not specified)
Adm. duration:	no data
Adm. interval:	no data
Dose:	260 (LD 50), 380 mg/kg of body weight (LD80)
Controls:	no data
Method:	no data
GLP:	no data

Result : The surviving animals showed after 24 h symptoms such as rigidly pressing together the forelegs and spreading the hindlegs, occasionally also pressing together the hindlegs, bent back and severe convulsions followed by death within 48 hours p.a. Animals surviving up to 6 months showed no improvement in symptoms. Histologically, damage to Purkinje cells occurred primarily in the cerebellum but also in the brain stem, hippocampus and cortex (2 to 5 weeks p.a.). The blood-brain barrier also showed damage.

Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main

Test substance : monochloroacetic acid

Reliability : (2) valid with restrictions
Guideline similar study with acceptable limitations

(71)

Type : Neurotoxicity
Remark Dichloroacetic acid and phenobarbital were tested in rodents as potential antidotes in monochloroacetic acid (MCA) poisoning. Administration to rats (Sprague-Dawley, males) of dichloroacetic acid (DCA; 110 mg/kg of body weight, i.p.) 15 minutes after administration of MCA (80 mg/kg of body weight, i.v.) reduced the mortality to 0. Administration of phenobarbital (PhB; 40 mg/kg of body weight, i.p.) reduced mortality to < 15 %. A similar effect was seen in mice (Swiss-Webster, males). In the authors' opinion, the lethal effect of MCA on rats is not associated with an altered permeability of the blood-brain barrier, because PhB did not change the concentration of MCA and of metabolites in plasma and in the cerebrospinal fluid (CSF) of rats that had been treated with a lethal dose of ^{14}C-MCA. Rather, the lethal effect is associated with a dose-dependent accumulation of lactate in the CSF which occurs in parallel with the ataxia and for which a threshold value for the mortality (18 mmol/l) has been noted. By use of DCA and PhB, the lactate level in the CSF and thus also the mortality were reduced.

Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main

Test substance : monochloroacetic acid
Reliability : (2) valid with restrictions
Study well documented, acceptable from a natural science standpoint and for evaluation

(120)

Type : other
Remark : Calves and sheep, after inadvertent ingestion of drinking water containing monochloroacetic acid (ca. 170 mg/kg of body weight) showed an estimated minimum lethal dose of about 20 - 70 mg/kg of body weight. Both animal varieties experienced paralysis of the extremities, tremor and convulsions. Necropsy showed blood-congested lungs, subcutaneous hemorrhage and edema as well as hemorrhages and bleeding in the epicardium and endocardium.
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(121)

Type : other
Remark : Cows showed after oral administration of 50 mg/kg of body weight (Na salt) lethargy fpr 24 hours; 100 mg/kg of body weight caused severe intoxication symptoms (the animals needed 2 weeks to recover); 150 mg/kg of body weight caused death after 9 hours; oral doses of 5 - 50 mg/kg of body weight given for 28 days were without effect.
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(122)

Type : other
Remark : Dogs after oral administration of 24 mg/kg of body weight or after intravenous administration of 25-30 mg/kg of body weight experienced vomiting and increased bile secretion.
Source : Hoechst AG Frankfurt 80

Hoechst AG Frankfurt/Main

Test substance : monochloroacetic acid

(123)

Type : other
Remark : Two geese showed no symptoms after oral administration of 50 mg/kg of body weight (Na salt). After 75 mg/kg of body weight, both animals died within 4 - 6 hours.
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(124)

Type : other
Remark : Molten monochloroacetic acid (about 60 °C) was applied to the shaved back skin of rabbits (male, 5-10 animals/group) for 1.5 or 5 minutes (3 - 5 % of the body surface) and then washed off with warm tap water for 2 minutes. Immediately after the washing, one part of the animals received an intravenous infusion of ethanol (0.5 – 3 g/L of saline, ear). The application of monochloroacetic acid caused all animals to die within a few hours. The symptoms were: loss of balance, lethargy, apnea and coma. As in poisoning with monofluoroacetic acid, hyperglycemia and severe acidosis were noted. Treatment with ethanol postponed the death of the animals , and the blood glucose level was less affected.
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(125)

Type : other
Remark : Dermal application of 200 or 400 mg/kg of body weight for 10, 20 or 40 minutes to rats was lethal.
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(72)

Type : other
Remark : Calves and sheep, after inadvertent ingestion of drinking water containing monochloroacetic acid (ca. 170 mg/kg of body weight) showed an estimated minimum lethal dose of about 20 - 70 mg/kg of body weight. Both animal varieties experienced paralysis of the extremities, tremor and convulsions. Necropsy showed blood-congested lungs, subcutaneous hemorrhage and edema as well as hemorrhages and bleeding in the epicardium and endocardium.
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid

(121)

Type : other
Remark : Cows showed after oral administration of 50 mg/kg of body weight (Na salt) lethargy for 24 hours; 100 mg/kg of body weight caused severe intoxication symptoms (the animals needed 2 weeks to recover); 150 mg/kg of body weight caused death after 9 hours; oral doses of 5 - 50 mg/kg of body

weight given for 28 days were without effect.

Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid

(122)

Type : other
Remark : Dogs after oral administration of 24 mg/kg of body weight or after intravenous administration of 25-30 mg/kg of body weight experienced vomiting and increased bile secretion
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid

(123)

Type : other
Remark : Two geese showed no symptoms after oral administration of 50 mg/kg of body weight (Na salt). After 75 mg/kg of body weight, both animals died within 4 - 6 hours.
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid

(124)

Type : other
Remark : Molten monochloroacetic acid (about 60 °C) was applied to the shaved back skin of rabbits (male, 5-10 animals/group) for 1.5 or 5 minutes (3- - 5 % of the body surface) and then washed off with warm tap water for 2 minutes. Immediately after the washing, one part of the animals received an intravenous infusion of ethanol (0.5 – 3 g/L of saline, ear). The application of monochloroacetic acid caused all animals to die within a few hours. The symptoms were: loss of balance, lethargy, apnea and coma. As in poisoning with monofluoroacetic acid, hyperglycemia and severe acidosis were noted. Treatment with ethanol postponed the death of the animals , and the blood glucose level was less affected.
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid

(125)

Type : other
Remark : Dermal application of 200 or 400 mg/kg of body weight for 10, 20 or 40 minutes to rats was lethal
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid
Reliability : (4) not assignable
Abstract

(72)

Type : Other: hepatotoxicity
Remark : Species: rat
Strain: Sprague-Dawley
Sex: male
Route of adm.: drinking water
Duration of adm.: 14 days
Adm. interval: daily

Dose: 170, 321, 501 mg/kg of body weight/day
Controls: received 0.2% NaCl solution
Method: no data

GLP: no data
Result::
Significant dose-dependent reduction in body weight growth and significant dose-dependent reduction in liver weight even at the lowest dose level, compared to the controls. No peroxisome proliferation.

Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

Test substance : monochloroacetic acid

(126)

Type : Other: hepatotoxicity
Remark : Species: mouse
Strain: B6C3F1
Sex: male
Route of adm.: drinking water
Duration of adm.: 14 days
Adm. interval: daily
Dose: 265, 386, 482 mg/kg of body weight/day
Controls:: received 0.2% NaCl solution
Method: no data
GLP: no data
Result::
No effect on body weight growth or on liver weight. No peroxisome proliferation
Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

Test substance : monochloroacetic acid

(126)

Type : Other: hepatotoxicity
Remark : Species: rat
Strain: Sprague-Dawley
Sex: male
Rt. of adm.: drinking water
Duration of adm.: 14 days
Adm. interval: daily
Dose: 170, 321, 501 mg/kg of body weight/day
Controls: received 0.2 % NaCl solution
Method: no data
GLP: no data

Result : Significant dose-dependent reduction in body weight growth and significant dose-dependent reduction in liver weight even at the lowest dose level, compared to the controls. No peroxisome proliferation.

Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main

Test substance : monochloroacetic acid

Reliability : (2) valid with restrictions
Study well documented, acceptable from a natural science standpoint and for evaluation

(127)

Type : Other: hepatotoxicity
Remark : Species: mouse
Strain: B6C3F1
Sex: male
Route of adm.: drinking water

Duration of adm.: 14 days
Adm. interval: daily
Dose: 265, 386, 482 mg/kg of body weight/day
Controls: received 0.2 % NaCl solution

Method: no data
GLP: no data

Result : No effect on body weight growth or on liver weight. No peroxisome proliferation
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid
Reliability : (2) valid with restrictions
Study well documented, acceptable from a natural science standpoint and for evaluation

(127)

Type : Other: kinetics and metabolism
Remark : Species: rat
Strain: Sprague-Dawley
Sex: male (3 animals)
Route of adm. s.c.
Duration of adm.: no data
Adm. interval: no data
Dose: 53 (LD1), 162 mg/kg of body weight (LD90)
Controls: no data
Methode: no data
GLP: no data
Result:
Predominantly distributed in the kidneys and liver; less radioactivity was measured in the plasma, heart and brain. At 53 mg/kg of body weight the highest plasma concentration was reached after 32 minutes. Elimination took place in two phases (half-life: fast phase: 90 min, slow phase 500 min). After 1024 minutes, 50 % of the adminstered radioactivity was detected in the urine.
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : [^{14}C]-labeled monochloroacetic acid

(81)

Type : Other: kinetics and metabolism
Remark : In rats to which 1µCi (37kBq) of1-^{14}C-monochloroacetic acid had been administered orally, the radioactivity in the plasma, liver, kidneys, heart, testes and spleen reached a peak after 1 – 2 h, after which it dropped rapidly (half-life: 2 – 7 hours). In the brain, the radioactivity increased up to 8 hours and then remained constant for 24 hours.
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(72)

Type : Other: kinetics and metabolism
Remark : Species: rat
Strain: Sprague-Dawley
Sex: male
Route of adm.: i.v. (tail vein)
Duration of adm.: no data
Adm. interval: no data
Dose: 6.8 µg/100 g of body weight
Controls: no data
Method: no data

GLP: no data
Test substance: 1-^{14}C-monochloroacetic acid
Result::
5 min p.a. rapid accumulation of radioactivity in the liver, kidney cortex, stomach walls, salivary and tear glands, esophagus, tracheal tissues, pancreas, certain ganglia of the peripheral nervous system, and incipient accumulation in the brain were noted. One hour p.a. the radioactivity was largely eliminated into the small intestine, the kidney contents and the urinary bladder. High accumulation was noted in the brain, bone marrow, thymus, myocardial tissue, salivary gland and tongue; 4 hours p.a. the liver and other tissues began to eliminate the radioactivity, whereas the brain (primarily the cerebellum), bone marrow, thymus and pancreas continued to accumulate the monochloroacetic acid which continued for 48 hours p.a. These observations suggest an early accumulation of monochloroacetic acid and/or its metabolites in hydrophylic tissue and accumulation in lipophilic tissues at a later time.

Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

Test substance : monochloroacetic acid

(128)

Type : Other: kinetics and metabolism
Remark : Species: rat
Strain: Sprague-Dawley
Sex: male (6 animals)
Route of adm.: i.v.
Duration of adm.: 75 minutes (the animals were terminated thereafter)
Adm. interval: no data
Dose: 80 mg/kg of body weight
Controls: no data
Method: no data
GLP: no data
Test substance: ^{14}C-monochloroacetic acid (0.25 µCi/mg)
Result::
The following substances or metabolites were identified: carboxymethylcysteine (brain and plasma), monochloroacetic acid (brain, plasma and cerebrospinal fluid = CSF), oxalic acid (brain and plasma) and thiodiacetic acid (plasma). Another substance in the brain and CFS could not be identified (it was neither chlorocitric acid nor glycolic acid).

Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

Test substance : monochloroacetic acid

(120)

Type : Other: kinetics and metabolism
Remark : Species: mouse
Strain: no data
Sex: female
Route of adm.: i.p.
Duration of adm.: no data
Adm. interval: no data
Dose: 70, 90, 100 mg/kg of body weight (^{14}C-labeled)
Controls: no data
Method: no data
GLP: no data
Result::
Within 72 h, 82-88 % of the radioactivity was found in the urine, 8% in the exhaled air and 0.2 – 0.3 % in the feces, 2 – 3% remained in the body. Two main metabolites were found in the urine, namely: S-carboxymethyl-L-cysteine (33 – 43%) and thiodiacetic acid (33 – 42%); moreover

monochloroacetic acid (6 – 22%), glycolic acid (3 – 5 %) and oxalic acid (0.1 – 0.2%). In the authors' opinion, two different degradation paths for monochloroacetic acid exist in the body:
main path → S-carboxymethylglutathione --> S-carboxymethylcysteine → thiodiacetic acid;
second path: enzymatic hydrolysis of the C-Cl bond → glycolic acid → CO_2

Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : ^{14}C-monochloroacetic acid

(129)

Type : Other: kinetics and metabolism
Remark :
Species: rat
Strain: Sprague-Dawley
Sex:: male
Route of adm.: oral (by stomach tube)
Duration of adm.: 3 days
Adm. interval: daily
Dose: 94.5 mg/kg of body weight (14.2 µL/dose)
Controls: no data
Method: no data
GLP: no data
Result:
Monochloroacetic acid was absorbed rapidly. 24 hours after the first administration, 57.7, 53.7, 32.1, 18.9, 17.8, 13.5, 10.7 or. 8.0 nmol of monochloroacetic acid equivalents/gram of tissue was found in the kidneys, liver, intestines, lungs, spleen, brain and testes. 24 hours after the 3rd administration, accumulation in the organs was noted (significant, $p \leq 0.05$, in the intestines, lungs, heart and testes). In the erythrocytes and hemoglobin, no significant binding of monochloroacetic acid was detected. In nondialyzed or dialyzed plasma, elevated binding to plasma proteins of about 0.57 or 0.42 nmol of monochloroacetic acid equivalents/kg of protein was noted 24 h after the 1st administration and of 0.88 or 0.71 nmol/mg of protein 24 h after the 3rd administration.

Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : [1-^{14}C]-labeled monochloroacetic acid

(130)

Type : Other: kinetics and metabolism
Remark :
Species: rat
Strain: Sprague-Dawley
Sex: male (3 animals)
Route of adm.: s.c.
Duration of adm.: no data
Adm. interval: no data
Dose: 53 (LD1), 162 mg/kg of body weight (LD90)
Controls: no data
Method: no data
GLP: no data

Result : Predominantly distributed in the kidneys and the liver; less radioactivity was measured in the plasma, heart and brain. At 53 mg/kg of body weight the highest plasma concentration was reached after 32 minutes. Elimination took place in two phases (half-life: fast phase: 90 min, slow phase 500 min). After 1024 minutes, 50 % of the adminstered radioactivity was detected in the urine.

Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : [^{14}C]-labeled monochloroacetic acid
Reliability : (2) valid with restrictions
Guideline similar study with acceptable limitations

(81)

Type : Other: kinetics and metabolsm
Remark : In rats which had received 1µCi (37kBq) 1-^{14}C-monochloroacetic acid orally, the radioactivity in plasma, liver, kidneys, heart, testes and spleen reached a peak after 1 – 2 h after which it dropped rapidly (half-life: 2 – 7 h). In the brain, the radioactivity increased up to 8 hours and then remained constant for 24 hours.
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid
Reliability : (4) not assignable
Abstract

(72)

Type : Other: kinetics and metabolism
Remark : Species: rat
Strain: Sprague-Dawley
Sex: male
Route of adm.: i.v. (tail vein)
Duration of adm.: no data
Adm. interval: no data
Dose: 6.8 µg/100 g of body weight
Controls: no data
Method: no data
GLP: no data
Test substance: 1-^{14}C-monochloroacetic acid
Result : 5 min p.a. rapid accumulation of radioactivity in the liver, kidney cortex, stomach walls, salivary and tear glands, esophagus, tracheal tissues, pancreas, certain ganglia of the peripheral nervous system, and incipient accumulation in the brain were noted. One hour p.a. the radioactivity was largely eliminated into the small intestine, the kidney contents and the urinary bladder. High accumulation was noted in the brain, bone marrow, thymus, myocardial tissue, salivary gland and tongue; 4 hours p.a. the liver and other tissues began to eliminate the radioactivity, whereas the brain (primarily the cerebellum), bone marrow, thymus and pancreas continued to accumulate the monochloroacetic acid which continued for 48 hours p.a. These observations suggest an early accumulation of monochloroacetic acid and/or its metabolites in hydrophylic tissue and accumulation in lipophilic tissues at a later time
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid
Reliability : (2) valid with restrictions
Study well documented, acceptable from a natural science standpoint and for evaluation.

(128)

Type : Other: kinetics and metabolism
Remark : Species: rat
Strain: Sprague-Dawley
Sex: male (6 animals)

Route of adm.: i.v.
Duration of adm.: 75 minuten (the animals were then terminated)
Adm. interval: no data
Dose: 80 mg/kg of body weight
Controls: no data
Method: no data
GLP: no data
Test substance: ^{14}C-monochloroacetic acid (0.25 µCi/mg)

Result : The following substances or metabolites were identified: carboxymethylcysteine (brain and plasma), monochloroacetic acid (brain, plasma and cerebrospinal fluid = CSF), oxalic acid (brain and plasma) and thiodiacetic acid (plasma). Another substance in the brain and CFS could not be identified (it was neither chlorocitric acid nor glycolic acid).

Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main

Test substance : monochloroacetic acid

Reliability : (2) valid with restrictions
Study well documented, acceptable from a natural science standpoint and for evaluation

(120)

Type : Other: kinetics and metabolism

Remark : Species: mouse
Strain: no data
Sex: female
Route of adm.: i.p.
Duration of adm.: no data
Adm. interval: no data
Dose: 70, 90, 100 mg/kg of body weight (^{14}C-labeled)
Controls: no data
Method: no data
GLP: no data

Result : Within 72 h, 82-88 % of the radioactivity was found in the urine, 8% in the exhaled air and 0.2 – 0.3 % in the feces, 2 – 3% remained in the body. Two main metabolites were found in the urine, namely: S-carboxymethyl-L-cysteine (33 – 43%) and thiodiacetic acid (33 – 42%); moreover monochloroacetic acid (6 – 22%), glycolic acid (3 – 5 %) and oxalic acid (0.1 – 0.2%). In the authors' opinion, two different degradation paths for monochloroacetic acid exist in the body:
main path → S-carboxymethylglutathione --> S-carboxymethylcysteine → thiodiacetic acid;
second path: enzymatic hydrolysis of the C-Cl bond → glycolic acid → CO_2

Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main

Test substance : ^{14}C-monochloroacetic acid

Reliability : (2) valid with restrictions
Study well documented, acceptable from a natural science standpoint and for evaluation.

(129)

Type : Other: kinetics and metabolism

Remark : Species: rat
Strain: Sprague-Dawley
Sex: male
Route of adm. oral (by stomach tube)
Duration of adm.: 3 days
Adm. interval: daily
Dose: 94.5 mg/kg of body weight (14.2 µL/dose)
Controls: no data

Method: no data
GLP: no data

Result : Monochloroacetic acid was absorbed rapidly. 24 hours after the first administration, 57.7, 53.7, 32.1, 18.9, 17.8, 13.5, 10.7 or. 8.0 nmol of monochloroacetic acid equivalents/gram of tissue was found in the kidneys, liver, intestines, lungs, spleen, brain and testes. 24 hours after the 3rd administration, accumulation in the organs was noted (significant, $p \leq 0.05$, in the intestines, lungs, heart and testes). In the erythrocytes and hemoglobin, no significant binding of monochloroacetic acid was detected. In nondialyzed or dialyzed plasma, elevated binding to plasma proteins of about 0.57 or 0.42 nmol of monochloroacetic acid equivalents/kg of protein was noted 24 h after the 1st administration and of 0.88 or 0.71 nmol/mg of protein 24 h after the 3rd administration

Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main

Test substance : [1-^{14}C]-labeled monochloroacetic acid

(130)

Type : Other: metabolism and kinetics

Remark : Rat (Sprague-Dawley), male (15 animals), 9.45 mg/kg of body weight (0.1 mmol/kg of body weight, 14.2 µCi/dose), p.o, animals killed after 4, 8, 12, 24 and 48 hours.

Result : Rapid absorption and elimination, about 90% of the dose was eliminated in the urine within 24 hours. Elimination was fastest from the intestines and kidneys. Maximum radioactivity in the intestines and kidneys after 4 and 8 hours p.a., then in descending order in the liver, spleen, testes, lungs, brain and heart.

Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main

(130)

Type : Other: metabolism of foreign matter

Remark : In pharmacokinetic studies, monochloroacetic acid appeared as a metabolite after administration of various foreign substances, for example after inhalation of trichlorethylene and possibly as glutathione conjugate (inactivated) after oral administration of chloroethanol to rats. Moreover, monochloroacetic acid was found in vivo as metabolite in the metabolism of vinyl chloride.

Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

(131) (132) (133)

Type : Other: metabolism and foreign matter

Remark : In pharmacokinetic studies, monochloroacetic acid appeared as a metabolite after administration of various foreign substances, for example after inhalation of trichlorethylene and possibly as glutathione conjugate (inactivated) after oral administration of chloroethanol to rats. Moreover, monochloroacetic acid was found in vivo as metabolite in the metabolism of vinyl chloride

Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main

(131) (132) (133)

5.11 EXPERIENCE WITH HUMAN EXPOSURE

Remark : Five cases of poisoning with fatal outcome (The Netherlands, 1949; USA, 1969 and 1980; Japan, 1984; Sweden, 1986) and two cases of poisoning with awakening from a coma have been reported (USA, 1975; France, 1985) have been reported. In all cases, the skin of a male worker was accidentally exposed to warm (30 - 90 °C), liquid or molten monochloroacetic acid (about 10% of the body surface, in one case 25 – 30 %, mainly the legs) and as a result suffered burns of the 1st – 3rd degree. In general, after a short time, the skin was washed with water for at least 10 min and then once again for 10 – 60 min with water or bicarbonate solution. The first clinical symptoms set in after 1 – 3 hours (vomiting, anxiety, convulsions, then cardiovascular shock, loss of consciousness, coma). Biochemical effects consisted of severe metabolic acidosis, hyperglycemia, hypokalemia, hardly any diuresis, and elevated phosphocreatinine kinase level. Death usually occurred 4 – 18 hours after the skin contact (in one case after 7 days). Nonspecific pathological damage was noted (liver, brain, kidneys, heart and other organs). Iy is assumed that the toxic mechanism (similar to that for monofluoroacetic acid) consists of a metabolic poisoning occurring as a result of a blockade of the Krebs TCC cycle. (Chlorocitrate presumably acts as an inhibitor of aconitase which leads to metabolic acidosis through accumulation of citric acid.)

Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

Test substance : monochloroacetic acid

(86) (125) (134)

Remark : In a laboratory accident, during the preparation of ^{14}C-labeled monochloroacetic acid, the fingers of an emplyee became contaminated (ca. 200 - 1600 rad; he washed his hands within 1 minute), about 1% was absorbed. With a half-life of 15 hours, monochloroacetic acid was eliminated predominanly unchanged, and in the slow phase it was bound to cysteine and glutathione or protein. In the blood, 17.5 h after the accident, less than 20% of the activity was found in the erythrocytes and the remainder in plasma. After 6 days, only very small amounts (0.16 mCi/mL) were detected in whole blood. The activities eliminated through urine and exhaled air were quantitatively about the same (0.16 mCi/day).

Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

Test substance : monochloroacetic acid

(131)

Remark : Monochloroacetic acid acts as a noncompetitive inhibitor on the acetate oxidation in vitro, reduces the sulfhydryl concentration in the liver and kidneys (rat) and does not exert an alkylating action on cysteine sulfhydryl groups in vitro.

Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main

Test substance : monochloroacetic acid

(81)

Remark : A special mechanism seems to underly the systemic toxicity; hence, the effectiveness of ethanol as an antidote seems to be questionable.
Source : Hoechst AG Frankfurt 80
Hoechst AG Frankfurt/Main
Test substance : monochloroacetic acid

(135)

Remark : Five cases of poisoning with fatal outcome (The Netherlands, 1949; USA, 1969 and 1980; Japan, 1984; Sweden, 1986) and two cases of poisoning with awakening from a coma have been reported (USA, 1975; France, 1985) have been reported. In all cases, the skin of a male worker was accidentally exposed to warm (30 - 90 °C), liquid or molten monochloroacetic acid (about 10% of the body surface, in one case 25 – 30 %, mainly the legs) and as a result suffered burns of the 1st – 3rd degree. In general, after a short time, the skin was washed with water for at least 10 min and then once again for 10 – 60 min with water or bicarbonate solution. The first clinical symptoms set in after 1 – 3 hours (vomiting, anxiety, convulsions, then cardiovascular shock, loss of consciousness, coma). Biochemical effects consisted of severe metabolic acidosis, hyperglycemia, hypokalemia, hardly any diuresis, and elevated phosphocreatinine kinase level. Death usually occurred 4 – 18 hours after the skin contact (in one case after 7 days). Nonspecific pathological damage was noted (liver, brain, kidneys, heart and other organs). It is assumed that the toxic mechanism (similar to that for monofluoroacetic acid) consists of a metabolic poisoning occurring as a result of a blockade of the Krebs TCC cycle. (Chlorocitrate presumably acts as an inhibitor of aconitase which leads to metabolic acidosis through accumulation of citric acid).
Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid
Reliability : (2) valid with restrictions
Study well documented, acceptable from a natural science standpoint and for evaluation.

(86) (135) (125) (134)

Remark : In a laboratory accident, during the preparation of ^{14}C-labeled monochloroacetic acid, the fingers of an emplyee became contaminated (ca. 200 - 1600 rad; he washed his hands within 1 minute), about 1% was absorbed. With a half-life of 15 hours, monochloroacetic acid was eliminated predominantly unchanged, and in the slow phase it was bound to cysteine and glutathione or protein. In the blood, 17.5 h after the accident, less than 20% of the activity was found in the erythrocytes and the remainder in plasma. After 6 days, only very small amounts (0.16 mCi/mL) were detected in whole blood. The activities eliminated through urine and exhaled air were quantitatively about the same (0.16 mCi/day).

Source : Hoechst AG Frankfurt/Main
Clariant GmbH Frankfurt am Main
Test substance : monochloroacetic acid
Reliability : (2) valid with restrictions
Guideline similar study with acceptable limitations

(131)

Remark	:	Monochloroacetic acid acts as a noncompetitive inhibitor on the acetate oxidation in vitro, reduces the sulfhydryl concentration in the liver and kidneys (rat) and does not exert an alkylating action on cysteine sulfhydryl groups in vitro.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid
Reliability	:	(2) valid with restrictions Guideline similar study with acceptable limitations

(81)

Remark	:	A special mechanism seems to underly the systemic toxicity; hence, the effectiveness of ethanol as an antidote seems to be questionable.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main
Test substance	:	monochloroacetic acid

(135)

Result	:	A 5-year old girl inadvertently drank 5 – 6 mL of a solution for wart removal which contained 80% monochloroacetic acid. She died 8 hours thereafter. The amount of monochloroacetic acid measured in the serum was 100 mg/L.
Source	:	Hoechst AG Frankfurt/Main Clariant GmbH Frankfurt am Main

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7.1 END POINT SUMMARY

7.2 HAZARD SUMMARY

7.3 RISK ASSESSMENT